LOWER SEYMOUR CONSERVATION RESERVE MANAGEMENT PLAN

GREATER VANCOUVER REGIONAL DISTRICT

SEPTEMBER 2003

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LOWER SEYMOUR CONSERVATION RESERVE MANAGEMENT PLAN – EXECUTIVE SUMMARY

The Lower Seymour Conservation Reserve (LSCR) is a 5,668 hectare site below the Seymour Watershed that offers some of the most spectacular scenery and outdoor recreational opportunities in the region. Originally part of the closed Seymour Watershed, the area was first opened to the public in 1987 as the Seymour Demonstration Forest. In 1999, the GVRD changed the name to the Lower Seymour Conservation Reserve to better reflect the multiple interests and uses of the area, including those of water utility, ecological, recreational, and educational significance.

GVRD Board Goals for the LSCR Management Plan

In establishing the LSCR, the GVRD Board approved four goals to guide its management in the future:

- *Maintain the LSCR's capacity as a water reserve (including provision for ongoing capital works and operation activities within the area and in nearby watersheds);*
- *Continue wildlife and forest management research and demonstration activities;*
- *Increase the recreational and interpretive potential to serve a growing number of recreational users;*
- *Use the planning process to create a new land stewardship approach that builds on the high level of public and stakeholder interest and involvement in this area.*

This management plan builds on these four goals. An extensive public consultation process including a series of forums, workshops, site tours and the taping of a television program took place beginning in the spring of 2000 to develop the management plan. A high level of interest was demonstrated through the public's involvement in the planning process.

Sustainability and the LSCR

The intent of this management plan is to establish a strategy for sustainability in the Lower Seymour Conservation Reserve. Sustainable management of this unique area requires the balance of many environmental, social and economic considerations in order to achieve the Board's goals. The public input we have received, and will continue to solicit, is an important part of this process.

Management Principles

Based on the Board's goals and extensive public input, seven principles were developed to guide management strategies for the plan.

1. *Recognize the LSCR's multiple values and work to balance these in a sustainable manner.*
2. *Encourage and support a high level of public involvement in ongoing decision-making, program delivery, management and monitoring activities.*
3. *Take an ecosystems-based approach to project planning and review.*
4. *Avoid environmental impacts associated with the uses of the area wherever possible, minimize those impacts that cannot be avoided, and restore and enhance impacted areas to the greatest extent possible.*
5. *Support recreational and educational activities with regional interest that depend on the unique landscapes and features of the LSCR and encourage their experience, appreciation and stewardship.*
6. *Lead by example in demonstrating and encouraging stewardship in LSCR activities.*
7. *Monitor changes in the LSCR over time, to guide and adapt management strategies.*

Maintaining the LSCR's Capacity as a Water Reserve and Providing for Water Utilities

The primary purpose of the LSCR, the purpose for which the land was purchased by the Greater Vancouver Water District or leased from the province, is to provide for water supply infrastructure. Planning is underway to construct a filtration plant, new water mains and to seismically upgrade Seymour Falls Dam in the LSCR. This will enhance system reliability, public safety and improve water treatment to meet provincial and federal water quality standards. Projects will be implemented consistent with strategies to avoid environmental impacts where possible, and to minimize those impacts which cannot be avoided. While there are no current plans to construct a new reservoir in the LSCR, the Management Plan maintains this option for the long-term future.

- *Integrate strategies of the LSCR Management Plan with the development of the Drinking Water Management Plan to ensure the ecological, recreational, educational and heritage values of the LSCR are well considered in the assessment of future drinking water supplies.*
- *Realize the synergies between the water utility projects and public recreational, educational, cultural heritage, research, and demonstration interests. Explore and evaluate opportunities to provide:*
  - *Public facilities (washrooms, interpretive facilities) in association with the filtration plant;*
  - *Public access across the dam;*
  - *Viewing and picnic facilities in conjunction with the seismic upgrade of the dam;*
  - *Access trails and road upgrading related to Seymour Main No. 5 and No. 6.*
- *Raise public awareness of the role of the Seymour watershed and the LSCR in the region's water supply and encourage water conservation and best practices for managing water. The development of an LSCR visitor/interpretation centre will support this.*

Creating a New Land Stewardship Approach

In the LSCR, stewardship means taking care of environmental, water utility, recreational, educational and cultural heritage assets in a sustainable manner for the collective benefit of the region and future generations.

Public Involvement

- *Establish a Lower Seymour Conservation Reserve Stewardship Forum to involve members of the public in ongoing stewardship and implementation of the management plan.*
- *Through the Stewardship Forum, explore means to raise funds for stewardship initiatives.*
- *Involve members of the public in a monitoring program to monitor baseline and changing conditions as well as the outcomes of implementing the management plan.*
- *Develop a stewardship appreciation program to recognize exemplary volunteer efforts in the LSCR.*

Ecosystem Protection

- *Conserve the ecological integrity and function of environmentally sensitive areas and species including old and mature forests, endangered (red-listed) and threatened (blue-listed) ecosystems, large/ heritage trees and riparian areas (Figure 4.0).*
- *Coordinate LSCR ecosystem management strategies with other relevant ecosystem initiatives (e.g. federal, provincial, bioregional, local initiatives).*
- *Develop an ecologically-based and integrated forest fire and forest insect management program.*

Managing Environmental Impacts

- *Coordinate the planning, implementation and review of projects and activities in the LSCR to develop strategies to maintain ecosystem functions and integrity.*
- *Implement best management practices in development projects, works, and visitor activities to avoid environmental impacts where possible, minimize those impacts that cannot be avoided, and restore and enhance impacted areas to the greatest extent possible.*

- *Prepare a comprehensive and integrated gravel extraction management plan for the LSCR.*
- *Develop a traffic management plan for major projects to minimize impacts on the local community, LSCR visitors and the environment.*
- *Designate an Environmental Monitor for all major capital projects to ensure projects meet environmental objectives.*

Restoration and Enhancement

- *Manage habitat losses or impacts resulting from capital projects, operations, maintenance and recreational activities through habitat restoration and enhancement measures to maintain critical ecological functions.*
- *Establish pilot projects to restore forest ecosystems in second growth stands of low biological diversity to improve important ecosystem functions and enhance biodiversity and habitat (Figure 6.0).*
- *Restore and enhance aquatic habitat in partnership with the Seymour Salmonid Society and the Department of Fisheries and Oceans.*

Cultural Heritage Resource Management

- *Recognize, manage and interpret cultural heritage resources to maintain and communicate the "heritage landscapes" of the LSCR (Figure 7.0).*
- *Establish a repository for information and artifacts on LSCR cultural heritage.*
- *Assess and manage potential impacts from proposed projects, works and recreational activities to protect significant cultural heritage resources. Screen projects and works based on the BC Archaeological Impact Assessments and the GVRD Archaeological Overview Assessment.*
- *Develop a procedures manual and training program to guide GVRD staff, contractors and stakeholders with on-site management of cultural heritage resources.*

Increasing Recreational and Interpretive Potential

The LSCR's features and location provide for recreational and educational activities not offered elsewhere in the region in a similar natural setting. Visitations have increased dramatically since the area first opened in 1987, and trends in visitation continue to rise.

Management Zoning Framework

- *Manage visitor activities and facilities in accordance with zones that support higher visitor use in low sensitivity areas and limit or carefully manage access in sensitive areas (Figure 8.0).*

Recreational Activities and Facilities

- *Assess and pursue the development of additional trails to connect with adjacent areas and expand the trail system to key destinations (Figure 9.0).*
- *Develop an implementation program in partnership with mountain biking organizations to support and enhance appropriate mountain biking in the LSCR.*
- *Increase potential for access and visitor facilities in the area between the Rice Lake gate and the south gate entrances.*
- *Provide public viewing and picnic facilities in conjunction with the seismic upgrade to Seymour Falls Dam.*
- *Review trail design, development and maintenance guidelines that address sensitive areas, activity type, and level of use.*
- *Establish a coordinated agreement with BC Parks to manage and maintain trails within the LSCR on the Dog Mountain plateau and Mount Seymour.*
- *Permit dogs in the area below Rice Lake gate and the Homestead Trail on-leash with off-leash areas, as posted. Provide effective education and waste disposal facilities for dog walking.*

Interpretation and Education

- *Guide the development of educational programs by key themes supported within the management plan, such as sustainable management and stewardship of the LSCR, and appreciation of its diverse natural and cultural landscapes.*
- *Develop a visitor interpretation centre to provide opportunities for public interpretation of the reserve's rich natural and cultural heritage, and its role in the region's water supply, as well as to support and demonstrate stewardship activities.*
- *Support and develop a program to train volunteers to lead public and school educational programs.*
- *Establish a coordinated information and interpretive medial signage program.*

Commercial Activities

- *Permit appropriate, low impact commercial activities that enhance visitor experience and provide benefits to the LSCR.*
- *Support filming activities based on the GVRD Filming Policy.*
- *Require that film producers develop and implement traffic management plans to minimize impacts of film traffic on LSCR users and the local community.*

Access and Transportation

- *Proceed with planning and implementation of the Selkirk-Monashee Connector and associated trail system jointly with the City of North Vancouver (CNV) and the District of North Vancouver (DNV) (Figure 10.0).*
- *Coordinate with Capilano College, CNV and DNV to develop a parking and staging facility at the south end of the LSCR to reduce the growing parking demand on the Rice Lake entrance area.*
- *In the short term, upgrade and maintain a gravel surface treatment of the access road. As part of the future design and construction of Main No. 6 (approximately 2012), re-assess the need to pave and upgrade the access road.*
- *Pursue the development of a multi-use trail system in cooperation with DNV and BC Hydro to connect the proposed Monashee trail to the Rice Lake entrance area (Figure 11.0).*
- *Redevelop the Rice Lake entrance to improve access and visitor services (Figure 12.0).*
- *Enhance shuttle bus service up the LSCR Valley to the Seymour Hatchery.*
- *In the medium to longer term, implement additional transportation demand management strategies such as a shuttle bus and pay parking to encourage alternative transportation modes in the LSCR.*

Continuing Wildlife and Forestry Research and Demonstration Activities

The LSCR serves as a "living laboratory" for research and demonstration projects pertaining to ecology, resource management, cultural heritage and recreation. Post-secondary institutions and numerous agencies use the LSCR extensively for these purposes. This learning arrangement benefits the information base available for making management decisions in the LSCR.

Research Directions

- *Guide research by key directions of the management plan, which support stewardship, leading practices in sustainable management and restoration of habitat.*
- *Establish partnerships and gain funding to advance ecological research and restoration activities identified in the management plan.*

- ► *Promote LSCR research and make results readily available to researchers, educators and members of the public by:*
  - *Setting up an interactive computer data base with ecological assessment data in the LSCR;*
  - *Highlighting research and demonstration projects on-line on the GVRD website;*
  - *Showcasing demonstration sites;*
  - *Developing a library of research reports within the LSCR.*

Forest Ecosystem Research

- ► *In partnership with research organizations and stewardship groups, conduct site level assessments on sensitive ecosystems and species.*
- ► *Establish long term plots to monitor the effects of human activities and changes in ecosystem composition, structure and function.*
- ► *Continue monitoring programs for hemlock looper, balsam woolly adelgid, gypsy moth and other insects and diseases.*
- ► *Monitor the establishment of invasive and non-native species.*

Cultural Heritage Resource Research

- ► *Complete an inventory and develop a map of cultural heritage sites and resources in the LSCR.*

Recreation Research

- ► *Conduct visitor surveys of the LSCR every 5 years.*

Implementation, Monitoring and Adaptive Management

The Management Plan sets out sound management practices and identifies future development directions, and ties these together as a means for achieving sustainability in the LSCR. Implementation will require establishing a balance among environmental, social and economic considerations. Resources will be determined through the GVRD's program and budget process, and through the establishment of partnerships with other organizations. Monitoring and adaptive management will be important components of the implementation process, highlighting successes and areas for improvement.

- ► *Prepare an annual implementation program for review by the GVRD Board.*
- ► *Assess and pursue the implementation of strategies, as identified in Appendix 1.0.*
- ► *Prepare an annual report to monitor implementation of the management plan for review by the GVRD Board.*
- ► *Review the LSCR Management Plan every 5 years to confirm or adapt goals, objectives and strategies as necessary.*

LOWER SEYMOUR CONSERVATION RESERVE MANAGEMENT PLAN

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1.0 INTRODUCTION AND BACKGROUND

1.1 The Lower Seymour Conservation Reserve – A Unique Landscape

The 5,668-hectare Lower Seymour Conservation Reserve (LSCR) contains some of the most spectacular and diverse landscapes in the Greater Vancouver Regional District (GVRD). Its forested valley, river flood plain and alpine areas are within minutes of downtown Vancouver and are easily accessible from many areas in the Lower Mainland (figures 1.0 and 2.0). Originally part of the Greater Vancouver Water District's (GVWD) closed watershed lands, the LSCR was first opened as the Seymour Demonstration Forest in 1987 to provide educational and recreational opportunities for the public. Today, people visit the LSCR and take part in a wide variety of activities including nature appreciation, hiking, cycling, in-line skating, kayaking, mountain biking, fishing, interpretive programs and various research and demonstration projects. Many of these activities are not offered anywhere else in the region. The GVRD Board of Directors renamed the area the Lower Seymour Conservation Reserve in the spring of 1999. The new name reflects the high level of public interest in the area's multiple uses, including its role as a water reserve and as a place for environmental stewardship, recreation, education, research and demonstration. To address the many interests and multiple management objectives for the area, the GVRD Board decided in April 1999 to develop a management plan to guide the future of the LSCR.

1.2 Goals for the LSCR Management Plan

The four goals defined by the GVRD Board for the management plan are to:

- *Maintain the LSCR's capacity as a water reserve (including provision for ongoing capital works and operation activities within the area and in nearby watersheds);*
- *Continue wildlife and forest management research and demonstration activities;*
- *Increase the recreational and interpretive potential to serve a growing number of recreational users; and*
- *Use the planning process to create a new land stewardship approach that builds on the high level of public and stakeholder interest and involvement in this area.*

1.3 Sustainability and the LSCR

The Lower Seymour Conservation Reserve is a multi-use area, and therefore subject to a variety of impacts. The intent of this management plan is to create a strategy for sustainability in the LSCR. Sustainable management of this unique area requires the balance of many environmental, social and economic considerations in order to achieve the GVRD Board's goals. This plan outlines management strategies that will help to protect the ecological integrity of the reserve while accommodating increased public access, and continued water utility operations. The public input we have received, and will continue to solicit, is an important part of the planning process.

FIGURE 1.0 – LOWER SEYMOUR CONSERVATION RESERVE AND GVRD WATERSHEDS

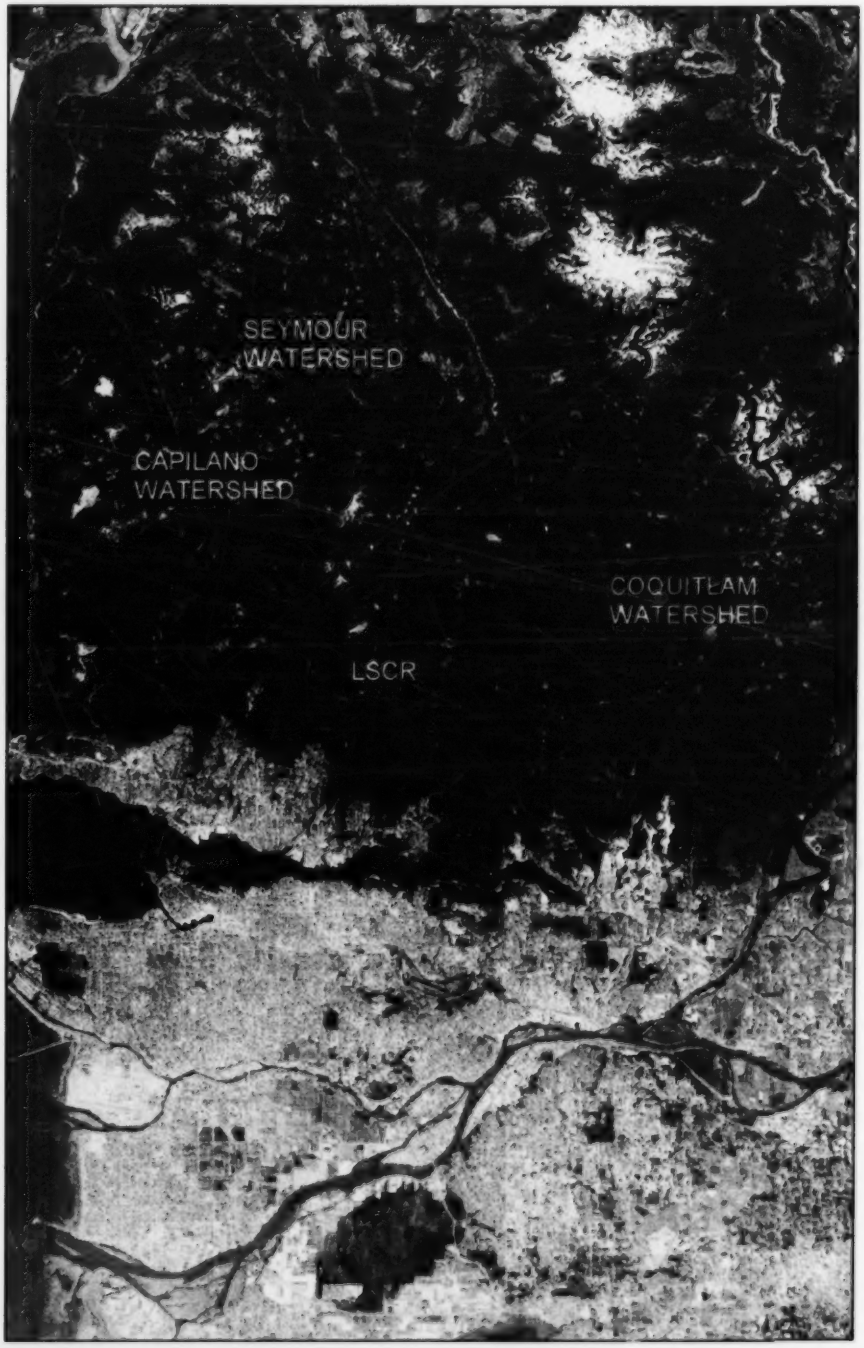


FIGURE 1.0 – LOWER SEYMOUR CONSERVATION RESERVE AND GVRD WATERSHEDS

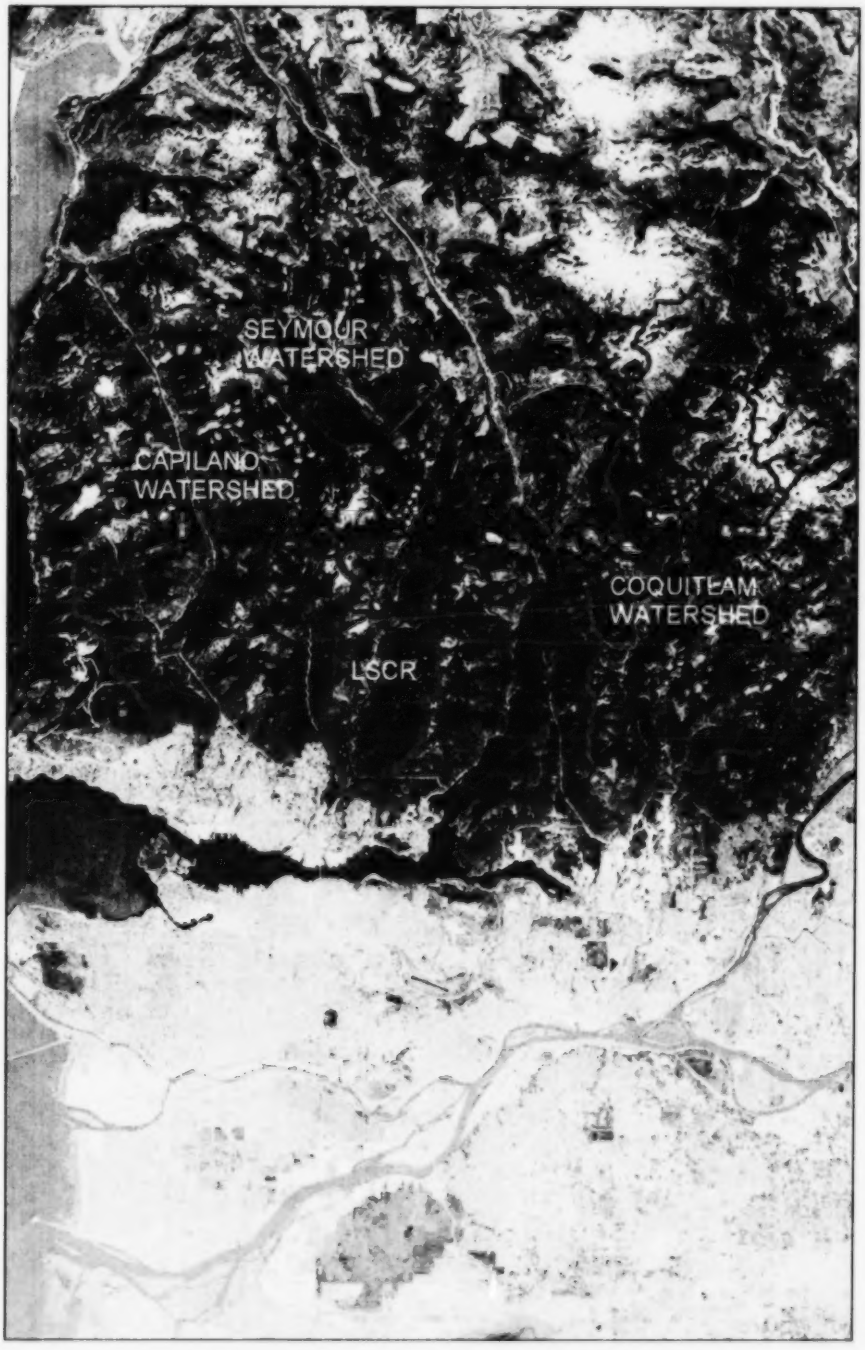
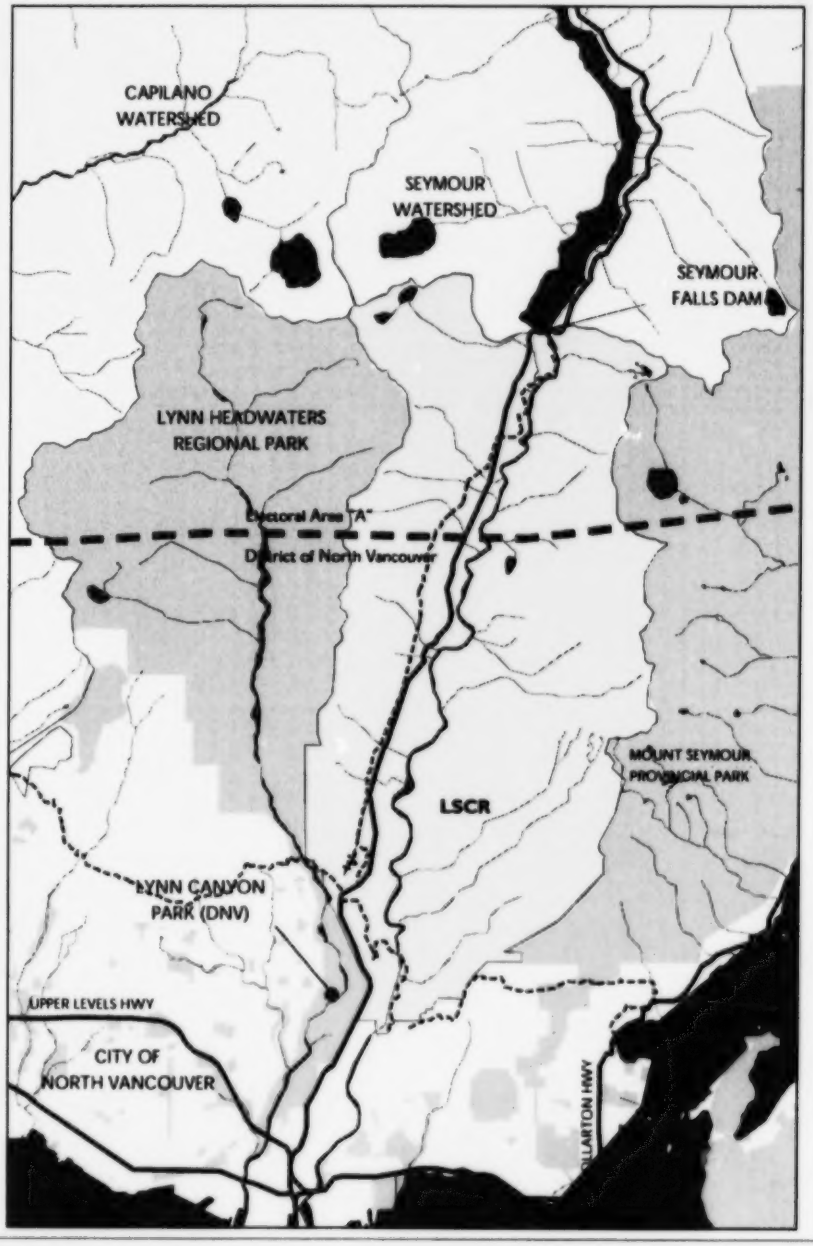


FIGURE 2.0 – LOWER SEYMOUR CONSERVATION RESERVE AREA CONTEXT



Plotted Apr. 01.0.2002

2.0 THE LSCR MANAGEMENT PLAN

2.1 Management Plan Vision

The vision reflects the Board's goals for managing the LSCR and extensive public input. It looks 25 years into the future and outlines important values to guide development of the management plan.

The Lower Seymour Conservation Reserve – A Place to Experience and Learn

In 25 years, the Lower Seymour Conservation Reserve will be recognized as a unique area in the region with a variety of natural and cultural landscapes in close proximity to dense, urban areas. It will be managed as part of an inter-connected system of natural processes and recreational and educational activities, regionally and internationally. And it will be a significant part of the region's Green Zone - lands that protect Greater Vancouver's natural assets.

The LSCR's primary purpose will continue to be the facilitation of public water supply, through both infrastructure and possible future water storage. As the 21st century advances, drinking water will be an important resource and the GVRD will ensure there are options for future high quality supplies. The ecological and recreational values of the reserve will, however, be well considered in assessing longer-term options for drinking water supply and measures to reduce demand will be well ingrained in residents of the region. A new filtration plant, water mains and upgraded dam will have been constructed. These facilities will reflect the natural environment, heritage values and educational and recreational interests of the reserve.

The LSCR will be an outdoor classroom and a showcase for leading research and demonstration practices to manage ecosystems and multiple uses in a sustainable manner. The diverse forests will provide an important opportunity for the public to learn about the ecology and biological diversity of the area as well as lessons from past activities and changes in management approaches. Forest management activities will focus on conserving, restoring and enhancing ecosystems while balancing with water utility and recreation uses of the area.

A variety of recreational opportunities that reflect the LSCR's landscapes and features and encourage their appreciation will be present. There will be an increase in recreational activities and visitor facilities and these will be provided in a manner that respects the sensitivities of specific areas. The reserve's visitor centre will be a major destination and will attract visitors from throughout the region and further afield to learn about the natural and cultural history of the LSCR and its role in the region's water supply. Commercial activities that are compatible with the reserve's environment and activities and provide significant benefit to visitors and the LSCR will be available. Numerous opportunities to cycle, walk and take public transit will be present to improve access and minimize impacts on the environment and local community.

The GVRD will lead by example in demonstrating stewardship in all activities in the LSCR. Partnerships with interest and community groups, agencies and organizations will be prevalent. The public will be involved in decision-making, program delivery and ongoing monitoring and management.

2.2 Principles to Guide the LSCR Management Plan

Seven principles will guide the GVRD in managing the LSCR and developing strategies for the plan.

1. *Recognize the LSCR's multiple values and work to balance these in a sustainable manner*

   The LSCR has a unique status as a publicly accessible open space with water reserve and water utility functions. It also has significant environmental, cultural heritage and aesthetic values, and has served as an important area for research and demonstration. A diversity of recreational and educational opportunities is present as a result of the interplay between these elements. In managing the LSCR, all of these values and uses will be considered in developing an appropriate and sustainable balance to maintain these assets for the future. Where trade-offs between multiple uses are required, the goal will be to minimize impacts to sensitive ecological systems.

2. *Encourage and support a high level of public involvement in ongoing decision-making, program delivery, management and monitoring activities*

   The public has expressed a strong interest in participating in ongoing decision-making and activities in the LSCR. There are currently many established partnerships with user groups, environmental agencies and organizations. The management plan builds on these initiatives and includes meaningful opportunities for the public to participate in planning, decision-making, program delivery, management activities and monitoring. The decision-making process will be transparent and open to the public.

3. *Take an ecosystems-based approach to project planning and review.*

   An ecosystem is a community of organisms interacting with one another and the environment or habitat in which they live. An ecosystems-based approach is a strategy for integrated management of land, water, air and living resources through promoting conservation and sustainable use. It looks at the parts, functions and relationships of particular ecosystems (e.g., water, air, soil, plants, fungi, wildlife, humans, energy flow) in considering the effect of proposed policies, projects, works and other human activities. A change in one component of an ecosystem resulting from a specific activity can affect other parts and functions. An ecosystems-based approach strives to manage in a manner that protects important functions and the overall integrity of ecosystems. It does not preclude development (e.g., construction of water utility projects). Rather it takes a proactive approach by understanding particular ecosystems and anticipated effects of activities, in order to develop strategies to avoid or minimize impacts. The scale of analysis and action should be determined by the problem being addressed.

4. *Avoid environmental impacts associated with the uses of the area wherever possible, minimize impacts that cannot be avoided, and restore and enhance impacted areas to the greatest extent possible.*

   The GVRD will attempt to avoid and minimize environmental impacts. However, due to the area's multiple uses, environmental impacts may result and must be managed. The priority will be to avoid environmental impacts where possible. Where impacts occur, they will be minimized and mitigated. Where significant losses of habitat cannot be reasonably avoided, the GVRD will endeavor to maintain critical ecological functions through habitat restoration and enhancement measures. The GVRD will comply with all applicable environmental regulations and requirements.

5. *Support recreational and educational activities with regional interest that depend on the unique landscapes and features of the LSCR and encourage their experience, appreciation and stewardship*

   Recreational and education activities that depend on the landscapes and features of the LSCR attract and serve users from throughout the region. In planning for future growth in the LSCR, activities will be managed to ensure the values and experiences of the reserve are maintained. The GVRD will encourage visitors to experience, appreciate and act as stewards toward the LSCR.

6. *Lead by example in demonstrating and encouraging stewardship in LSCR activities*

   Stewardship of the environmental, water utility, recreational, educational, research and demonstration values of the LSCR will be supported in the planning, implementation and management of activities. Stewardship initiatives involving the public will be strongly encouraged and supported.

7. *Monitor changes in the LSCR over time to guide and adapt management strategies*

   In order to measure changes and the effects of management activities in the LSCR, ongoing monitoring will be required. This may include monitoring biophysical parameters (e.g., sensitive species), programs and their outcomes, and visitor use and facilities. The results will be used to guide and adapt future management activities to achieve the plan objectives.

2.3 Maintaining the Capacity of the LSCR as a Water Reserve and Providing for Water Utilities

The primary purpose of the LSCR, the purpose for which the land was purchased by the Greater Vancouver Water District or leased from the province, is to provide for water supply infrastructure. While there are no current plans to construct a new reservoir in the LSCR, the Management Plan maintains this option for the long-term future. Clean, high quality drinking water is a fundamental resource for the region that needs to be protected. The region's present water supply needs are met by the Capilano, Seymour and Coquitlam water sources. The LSCR's role in the future development of the water supply system, both in terms of infrastructure and water storage, is being assessed under the Drinking Water Management Plan. Preliminary assessments suggest additional water supplies for the region are not needed until about 2050. Strategies to manage water demands, such as water conservation measures, will be addressed by the Drinking Water Management Plan and will play a significant role in reducing future needs to develop alternative sources of supply.

The Seymour watershed, above the LSCR, supplies water to approximately 40% or 800,000 residents of the region. It is also the main source in the event of an emergency. The LSCR functions as an integral part of the water delivery system for the Seymour source, providing for extensive water utilities infrastructure. This infrastructure includes the Seymour Falls Dam, pipelines, chlorination and other treatment facilities, operations and maintenance facilities.

Planning is underway to build, upgrade and operate GVRD water utility facilities in the LSCR to increase supply, enhance system reliability and public safety, and improve water treatment to meet provincial and federal water quality standards. Planned water utility projects include the construction of a filtration plant and new water mains (Seymour Main No. 5 and Main No. 6), and the seismic upgrade of the Seymour Falls Dam, as shown in Figure 3.0.

OBJECTIVE

Ensure the environmental, recreational, educational and cultural heritage values of the LSCR are well considered in identifying future drinking water options for the region.

STRATEGY

Integrate strategies of the LSCR Management Plan in the development of the Drinking Water Management Plan.

The directions of the LSCR Management Plan regarding its environmental, recreational, educational and cultural heritage assets will be integrated in the development of the region's Drinking Water Management Plan to ensure these aspects are adequately considered in the evaluation of future water supply options. An assessment of future options to supply the region's drinking water is under development as part of the Drinking Water Management Plan. It is anticipated this will provide direction on the LSCR's role as a water reserve. As long as the LSCR remains a water reserve, major capital enhancements to the area will be focused outside of potential supply areas.

OBJECTIVE

Recognize the relationship of water utility projects to the LSCR's environmental, cultural heritage, recreational and educational activities, in order to maintain these values and enhance visitor experience.

STRATEGY

Realize the synergies between the water utility projects and public recreational, environmental, educational, cultural heritage, research and demonstration interests.

Explore and evaluate opportunities to provide:

- Public facilities (washrooms, interpretive facilities) in association with the filtration plant;
- Public access across the dam;
- Viewing and picnic facilities in conjunction with the seismic upgrade of the dam; and
- Access trails and road upgrading in concert with the planning and development of Seymour mains No. 5 and No. 6.

OBJECTIVE

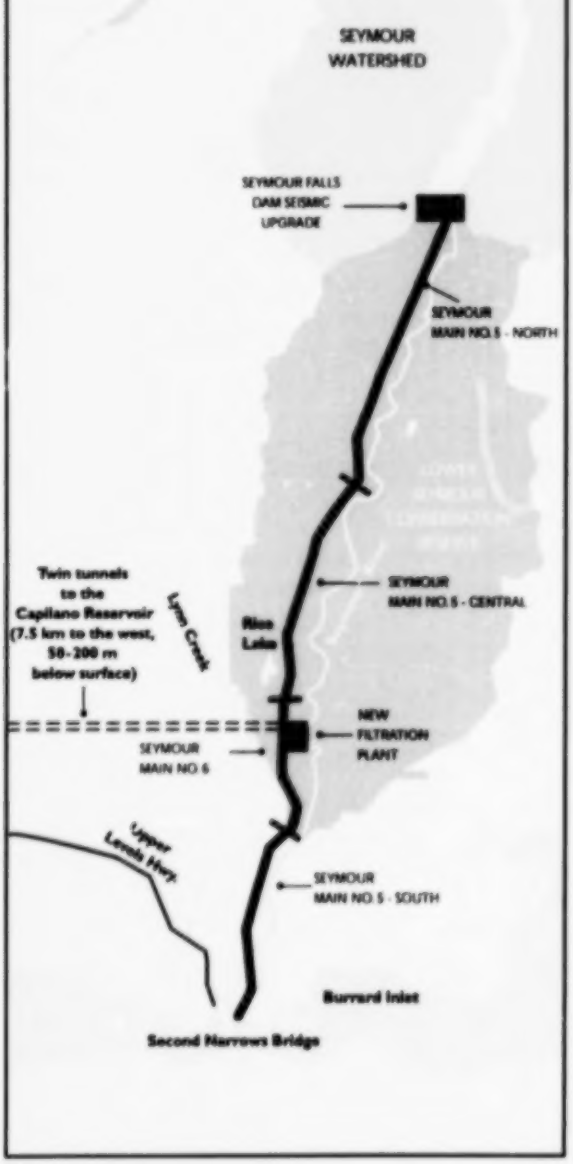
Raise awareness of the role of the LSCR in the region's water supply and educate the public on water conservation and best practices to help conserve the Seymour source.

STRATEGY

Interpret the role of the Seymour watershed and the LSCR in the region's water supply and encourage water conservation and best management practices.

The GVRD will raise awareness and encourage public understanding of the role and the importance of the region's water supply, specifically that of the Seymour source and the LSCR. The LSCR is an ideal interpretation site due to its proximity to highly urbanized areas in the region, its active role in public education programming and its high visitation rate. A focus of the proposed visitor centre (see 2.5.3) will be on the supply, management and delivery of drinking water to the region.

FIGURE 3.0 – LOCATION OF SEYMOUR WATER UTILITY PROJECTS


SEYMOUR WATERSHED
SEYMOUR FALLS DAM SEISMIC UPGRADE
SEYMOUR MAIN NO. 5 - NORTH
SEYMOUR MAIN NO. 5 - CENTRAL
Twin tunnels to the Capilano Reservoir (7.5 km to the west, 50-200 m below surface)
Lynn Creek
Rice Lake
NEW FILTRATION PLANT
SEYMOUR MAIN NO. 6
Upper Lynn Hwy
SEYMOUR MAIN NO. 5 - SOUTH
Burrard Inlet
Second Narrows Bridge

2.4 Creating A New Land Stewardship Approach

A key goal defined by the GVRD Board for the LSCR Management Plan is *"to create a new land stewardship approach that builds on the high level of public and stakeholder interest and involvement."* In the LSCR, stewardship means taking care of environmental, water utility, recreational, cultural heritage and educational assets in a sustainable manner for the collective benefit of the region and future generations. Stewardship affects the actions associated with all of the goals for the management plan.

2.4.1 Public Involvement

OBJECTIVE

Promote and involve members of the public in stewardship of the LSCR.

STRATEGIES

Establish a Lower Seymour Conservation Reserve Stewardship Forum to involve members of the public in ongoing stewardship and implementation of the management plan.

The GVRD will invite members of the public and LSCR interest groups to participate in a LSCR Stewardship Forum. This Forum is expected to be convened several times per year to provide an opportunity for participants to be involved in stewardship activities and give ongoing input in the implementation and monitoring of the management plan. The Forum will facilitate an on-going dialogue among stakeholders and GVRD staff, providing benefits to both the public and the GVRD through an increased awareness of the multiple issues and values involved in decision-making for the area. It will offer the opportunity to coordinate the LSCR's various interest groups in a continuum of partnering activities.

The LSCR Stewardship Forum will facilitate:

- Input from the broad spectrum of LSCR interests such as: environmental, water utility, recreational, educational, heritage, research and demonstration, and the local community;
- Provision for involvement from adjacent jurisdictions including the District of North Vancouver (DNV), City of North Vancouver (CNV) and BC Parks;
- The formation of working groups to effectively address specific initiatives in the LSCR (e.g., environmental, recreational initiatives).

Through the Stewardship Forum, explore means to raise funds for stewardship initiatives.

Through the LSCR Stewardship Forum, means to raise funds for implementing stewardship initiatives that are consistent with the management plan will be explored. Potential mechanisms include establishing associations linked to the Forum's working groups, applying for grants, and generating revenues from appropriate commercial activities.

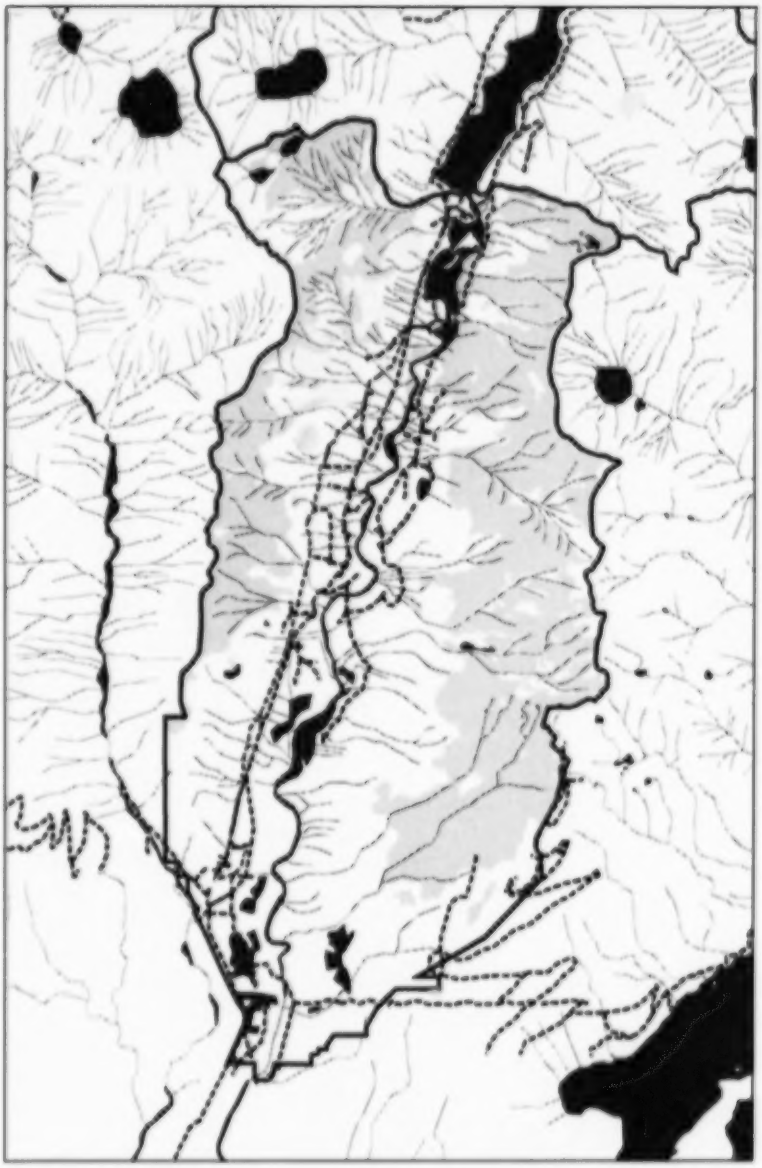
Involve members of the public in a monitoring program to monitor baseline and changing conditions as well as outcomes of implementing the management plan.

Opportunities for public involvement and access to monitoring data will be incorporated as part of those strategies to monitor baseline conditions and implementation of the management plan (see sections 2.6 and 2.7). This may involve monitoring the occurrences of rare and sensitive species, recreational activities and facilities, and heritage resources, as well as providing monitoring data in accessible formats for the public.

Develop a stewardship appreciation program to recognize exemplary volunteer efforts in the LSCR.

There is a need to celebrate and showcase the good stewardship works taking place in the LSCR and to formally recognize the extensive contributions of volunteers. A stewardship appreciation and awards program will be coordinated through the LSCR Stewardship Forum to acknowledge these important works and encourage ongoing stewardship and cooperation. The program will increase awareness of these initiatives throughout the region and encourage participation.

FIGURE 4.0 – LSCR ENVIRONMENTALLY SENSITIVE AREAS: INCLUDING MATURE AND OLD FORESTS, RED AND BLUE-LISTED ECOSYSTEMS AND RIPARIAN AREAS



EXISTING RED > LISTED ECOSYSTEM

EXISTING BLUE > LISTED ECOSYSTEM

RIPARIAN MANAGEMENT AREA

OLD FOREST > 250 YEARS

MATURE FOREST > 150 – 250 YEARS

RECREATIONAL PATHWAY

ROAD

The BC Conservation Data Centre (CDC) identifies Red and Blue Ecosystems.

RED ECOSYSTEM
Imperiled because of rarity,Vulnerable to extirpation or extinction.

BLUE ECOSYSTEM
Rare or uncommon; may be susceptible to major disturbance.

LSCR red/blue ecosystems occur only in mature or old forests.

Further site level assessment is required to confirm presence of above areas.

N

0Km 1Km 2Km 4Km

SCALE 1:75,000

Revised Dec. 21, 2003

2.4.2 *Ecosystem Protection*

The LSCR contains a mosaic of forests altered by past events such as natural processes and disturbances, early homesteading, logging and mining. More recent change was caused by harvesting and insect control practises, and the development of water utility projects. This diversity of forests provides a variety of habitats as well as educational and recreational opportunities. Old forests, defined within the LSCR Ecological Assessment (Acres, 1998; Ryder and Assoc., 1998) as those of 250 years of age and older, have the greatest biological diversity of all forests in the LSCR. They are highly significant from a regional and provincial perspective due to their ecological value, representation of rare and endangered ecosystems and provision of habitat for many rare and endangered wildlife species.

Aquatic habitats include the Seymour River, its tributaries, several lakes and wetlands that support salmon, trout and a diversity of species. Riparian areas that have not been impacted by harvesting activities are also some of the most biologically diverse habitats within the LSCR and provide important functions for a wide range of species at different stages in their life cycle.

OBJECTIVE

Identify and maintain the integrity and function of environmentally sensitive areas, ecosystems and species in the LSCR.

STRATEGY

Conserve the ecological integrity and function of environmentally sensitive areas and species including old and mature forests, endangered (red-listed) and threatened (blue-listed) ecosystems, large/ heritage trees and riparian areas.

Figure 4.0 shows environmentally sensitive areas based on the Ecological Assessment data including old forests, existing endangered (red-listed) and threatened (blue-listed) ecosystems listed by the BC Conservation Data Centre (CDC), riparian areas and streams. Figure 5.0 shows old and ancient forest ecosystems, with ancient stands being those where very large heritage trees are expected. Data is based on a broad, landscape level assessment and more detailed site investigations are required to confirm the occurrence of sensitive ecosystems (Section 2.6). This information highlights areas for detailed site assessments to determine areas for conservation and to guide the planning of projects and works. This strategy acknowledges that the ecological integrity and function of sensitive ecosystems may be maintained while permitting managed human access and development. For example, a boardwalk in a wetland area can allow for the flow and infiltration of surface water and serve to protect aquatic habitat while facilitating managed access for visitors.

OBJECTIVE

Manage ecosystems to protect and enhance biological diversity based on regional, provincial and federal objectives.

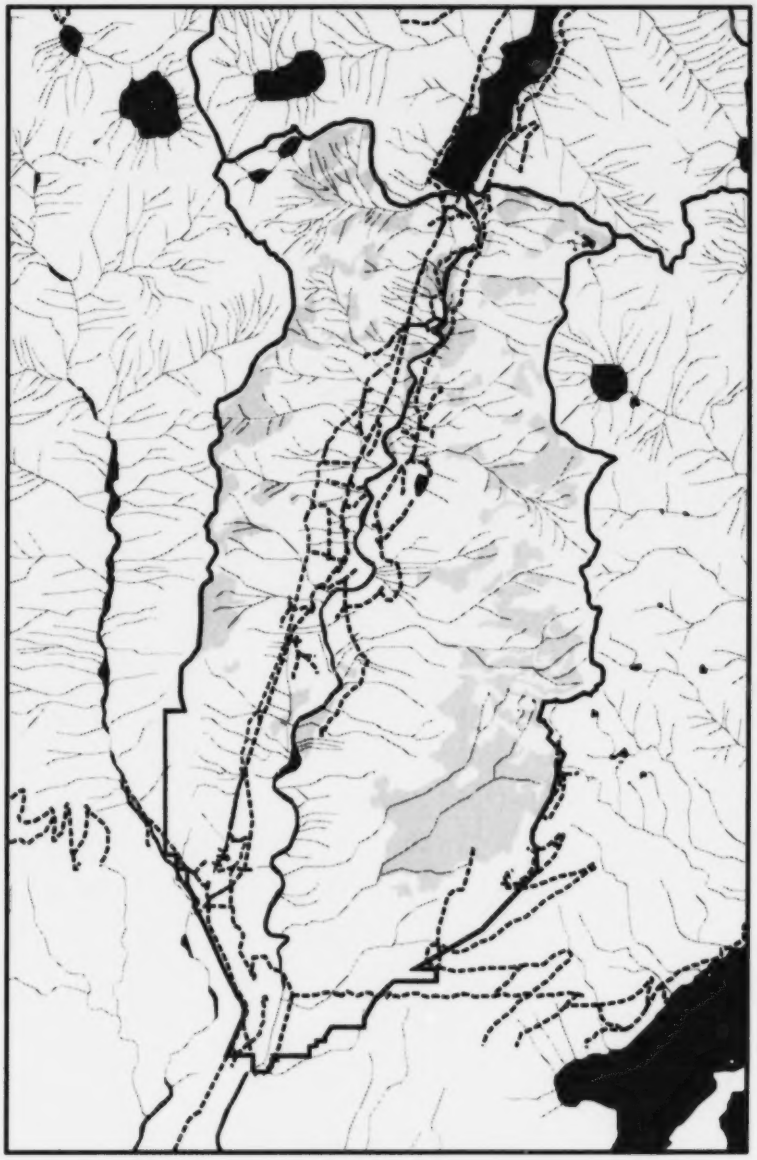
STRATEGY

Coordinate LSCR ecosystem management strategies with other relevant ecosystem initiatives (e.g. federal, provincial, bioregional, local initiatives).

As an example, through the Georgia Basin Ecosystem Initiative (GBEI) the GVRD, along with Environment Canada, Ministry of Water, Land and Air Protection (MWLAP), BC Ministry of Community, Aboriginal and Women's Services, Burrard Inlet Environmental Action Program, Fraser River Estuary Management Program and Ducks Unlimited are involved in a pilot project to:

- determine priorities for biodiversity conservation in the Greater Vancouver Region;
- examine the network of environmentally significant areas and habitats in the GVRD (public, private and urban lands) and assess the status of biodiversity;
- develop a strategy to manage lands to protect and enhance biodiversity.

FIGURE 5.0 – LOWER SEYMOUR CONSERVATION RESERVE
OLD AND ANCIENT FOREST ECOSYSTEMS



OLD FOREST › 250 YEARS TO 350 YEARS.
High elevation, disturbed by snow,
Periodic disturbance

ROAD

ANCIENT FOREST › 350 YEARS

Gap Replacement,
Some Periodic Disturbance

RECREATIONAL PATHWAY

NOTES

Gap replacement – small scale
natural disturbances in canopy due
to tree mortality,
Periodic disturbance – Fire

N

0Km 1Km 2Km 3Km
SCALE 1:75 000

Plotted Dec. 20 2001

The LSCR and GVRD watersheds are a major "ecological reservoir" in the region. Data will be shared and ecosystem management initiatives will be coordinated to support the GBEI Biodiversity Conservation pilot project.

OBJECTIVE

Manage ecosystems to recognize natural processes including fire and insect infestations. Work proactively to avoid deleterious impacts that may result from suppressing these, while ensuring public safety, property, recreational and aesthetic values are maintained.

STRATEGY

Develop an ecologically-based, integrated forest fire and forest insect management program

Restricting natural disturbances (e.g., fires, endemic and epidemic insect infestations, small landslides) is necessary to protect public safety, property, existing rare and endangered ecosystems and species, air and water quality and aesthetic values of the LSCR. A program that recognizes the role of these natural processes and allows them to proceed, where appropriate, will be developed to manage fire and other natural disturbances. This approach is consistent with the principle of low intervention for the GVRD watersheds. Thinning of young, second growth stands is a technique which may also be applied to manage fire hazard by altering stand structure and reducing fuels. High fire hazard stands around major infrastructure or high visitor use areas are of primary concern. Research by post-secondary institutions and involvement by other agencies and partners will be pursued in this initiative.

2.4.3 Managing Environmental Impacts

The construction, operation and maintenance of water utility, recreation, education, research and demonstration projects and activities may be associated with environmental impacts. Strategies to manage these will be implemented to support stewardship of the LSCR.

OBJECTIVES

Environmental objectives applying to all projects, works and activities in the LSCR that may be considered include:

- **avoid impacts to terrestrial and aquatic habitat and species where possible, and minimize those impacts which cannot be avoided**
- **maintain water quality**
- **maintain water quantity**
- **restore or enhance impacted habitat**
- **maintain and enhance biodiversity**
- **prevent pollution**
- **conserve energy and resources**
- **minimize wastes**
- **maintain air quality**
- **minimize noise impacts**
- **avoid and minimize impacts to heritage resources**
- **monitor projects and activities during and following implementation.**

STRATEGIES

Coordinate the planning, implementation and review of projects and activities to develop strategies to maintain ecosystem functions and integrity.

A coordinated environmental planning, implementation and review process for significant projects and activities within the LSCR is outlined below. It will involve interdisciplinary GVRD staff coordinating the planning, design and review of various projects throughout the LSCR to align them with the principles of the management plan. The process provides for coordination and review of projects with environmental agencies and adjacent

jurisdictions. As well, information on projects and opportunities for input will be provided to the public through the LSCR Stewardship Forum.

This coordinated environmental planning process emphasizes learning and adaptation, as well as the ability to realize synergies between activities. Phases of the process include:

Planning and Design

- Preparation of an annual implementation program
- Aligning projects with LSCR Management Principles
- Screening for applicability of environmental regulations and requirements (e.g., Canada Fisheries Act, BC Water Act, BC Fish Protection Act, BC Wildlife Act, BC Contaminated Sites Regulation and Forest Act)
- Environmental agency review and approval as required
- Development of best management practices (see below).

Implementation and Monitoring

- Projects are implemented
- Environmental monitor may be required, depending on the scope of the project and environmental agency requirements
- Adaptive management measures may be implemented based on monitoring
- Status reporting.

Evaluation

- Project evaluation with input from environmental monitor, various GVRD functions, environmental agencies (as required).

Annual Reporting

- Comprehensive summary and evaluation of LSCR programs and projects to GVRD Board and environmental agencies (as required)

Adaptive Management – for continuing projects and activities

- Based on insights from monitoring and evaluation experiences, management practices are modified to better achieve environmental objectives
- Input from various GVRD functions and environmental agencies (as required).

Implement best management practices in development projects, works, and visitor activities to avoid environmental impacts where possible, minimize those impacts that cannot be avoided, and restore and enhance impacted areas to the greatest extent possible.

Best management practices are a system of accepted methods, measures, or practices designed to maintain, avoid or minimize deterioration of the environment where projects and works are proposed. Management practices may involve structural (e.g., engineered) or non-structural (e.g., planning, operations practices) solutions. They provide a means towards achieving environmental objectives. The GVRD will implement best management practices in projects, works, and visitor activities in the LSCR to avoid and minimize environmental impacts. Specific practices will be determined through the coordinated environmental planning process (described above).

OBJECTIVE

Manage the extraction of gravel to ensure that impacts to surrounding areas are minimized and disturbed areas are restored.

STRATEGIES

Prepare a comprehensive and integrated gravel extraction management plan for the LSCR.

Gravel extraction within the LSCR for those water utility projects in the LSCR was strongly supported by the public to reduce truck traffic through the local community. To ensure gravel extraction does not impact sensitive ecosystems and their functions, the GVRD will develop a comprehensive strategy for the extraction and management of gravel resources. This will address gravel requirements of all water utility and capital projects as well as ongoing operations and maintenance requirements within the LSCR. Aspects to be addressed in the plan may include implications for:

- hydrology, including ground water
- fish and aquatic habitat
- sediment control
- terrestrial ecosystems including CDC red and blue-listed ecosystems
- restoration
- consideration of visitor facilities, where appropriate
- cost/benefit analysis.

Develop a comprehensive Traffic Management Plan for major projects

The GVRD will develop traffic management plans as part of planning for major projects and works. Plans will consider:

- cooperation with the CNV, DNV and Ministry of Transportation and Highways where appropriate
- safety of the community and LSCR users construction vehicle speed
- vehicle maintenance
- hours of operation
- dust and sediment control
- air quality and emissions
- spill management
- emergency procedures
- noise control
- means to minimize construction and worker traffic volumes
- maintenance of the gravel road structure
- mechanisms for ongoing communications with the community
- means of enforcement.

OBJECTIVE

Monitor the implementation of projects and works to prevent unanticipated environmental impacts and ensure environmental objectives are met.

STRATEGY

Designate an Environmental Monitor for all major capital projects to ensure projects meet environmental objectives.

Environmental monitoring will be conducted by qualified environmental monitors on major projects to prevent environmental impacts, respond to environmental incidents in a timely manner and adapt management strategies as needed based on site specific conditions. The involvement of environmental monitors will be advised through the coordinated environmental planning and review process (described previously) and may involve independent or qualified GVRD monitors depending on project requirements.

2.4.4 Restoring and Enhancing Ecosystems

Ecosystem restoration efforts address areas impacted by current works and projects as well as disturbances from past activities and practices.

OBJECTIVE

Minimize the loss of significant habitat and ecosystem functions from the development and implementation of projects and works.

STRATEGY

Manage habitat losses or impacts resulting from capital projects, operations, maintenance and recreational activities through habitat restoration and enhancement measures to maintain critical ecological functions.

Through the coordinated environmental planning process (see 2.4.3), environmental impacts will be avoided where possible, and minimized where they cannot be avoided. Regulatory requirements will be met. However, in areas where habitat is lost or compromised, the GVRD will restore or enhance habitat to maintain critical ecosystem functions. Habitat will be restored or enhanced in the area of disturbance or will be created elsewhere in the LSCR. Planting of native vegetation, installation of bird and bat nesting boxes, riparian and aquatic habitat enhancements, and treatments to enhance complexity of forest structure in second growth forest stands of low biodiversity are examples of habitat enhancements that may be considered. This initiative will be guided by an environmental enhancement program to be developed by the GVRD as a corporate strategy.

OBJECTIVE

Restore previously disturbed sites to enhance ecosystem functions, habitat, and biodiversity.

STRATEGIES

Establish pilot projects to restore forest ecosystems in second growth stands of low biological diversity to improve important ecosystem functions and enhance biodiversity and habitat.

Early settlement, mining, forest harvesting, wildfires, and water supply infrastructure development have extensively altered the forest landscapes of the LSCR resulting in a loss in overall stand biodiversity. The loss of specific ecosystem functions impacts overall ecosystem health and diversity.

Figure 6.0 classifies LSCR forests based on biodiversity. Stands of low biological diversity are typically associated with previously harvested, young stands in the shrub herb (age 5-20 years) and pole sapling (20-40 years) stages with high densities and minimal species and structural diversity.

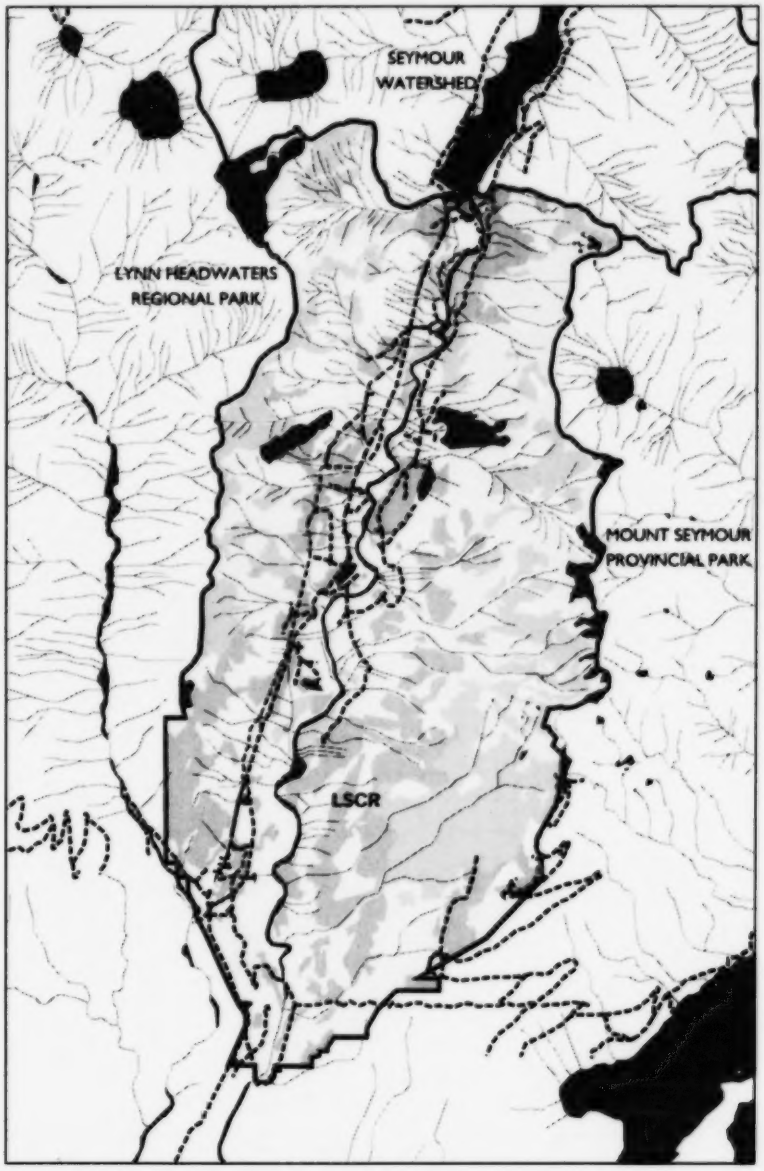
Restoration and enhancement activities will be implemented in second growth areas of low biodiversity to re-establish more rapidly complex habitat structures characteristic of old forest ecosystems. Pilot projects will be developed and evaluated through the coordinated environmental planning process and involve environmental agency review and GVRD Board approval. Public input will be facilitated through the LSCR Stewardship Forum. Activities may include underplanting with appropriate native species, creation of gaps to allow light and new vegetation to establish, biodiversity or ecological "thinning" to allow remaining trees to grow larger in diameter more quickly, the creation of snags (dead standing trees which provide habitat for insects, birds, lichens), the creation of fallen woody debris, and other works. In this way, treated forests may provide greater habitat and will progress toward more biologically diverse old forest stages much sooner than if unmanaged.

Another focus of these ecosystem restoration activities is in harvested riparian (streamside) stands in the LSCR. Some riparian functions, such as the provision of large woody debris and development of a diversity of vegetation, will take hundreds of years to fully recover. Biodiversity thinning and forest complexing can significantly increase the recovery of these functions, thereby enhancing stream stability and habitat for fish and aquatic species. An inventory of forest riparian ecosystems will be carried out to identify riparian stands and stream reaches where ecosystem function has been lost, where stream ecosystem values are threatened, and where ecosystem restoration will significantly increase the rate of recovery of riparian ecosystem functions. This will provide essential background information for potential restoration activities and monitoring.

Restore and enhance aquatic habitat in partnership with the Seymour Salmonid Society and Fisheries and Oceans Canada.

Damming of the Seymour River has affected the hydrology and fisheries of the Seymour Valley. The Seymour Salmonid Society operates the Seymour Hatchery through an operating contract with Fisheries and Oceans Canada to propagate a number of salmonid species to enhance populations and the fishery of the Seymour River system. Habitat enhancements to mitigate and compensate for impacts associated with water utility and recreational activities will continue to be undertaken in partnership with the Seymour Salmonid Society and Fisheries and Oceans Canada. These will be developed through the environmental planning and review process (section 2.4.3) to provide enhanced coordination between aquatic and terrestrial habitat values. For example, information on red and blue-listed ecosystems will be integrated in the planning of aquatic enhancement projects.

FIGURE 6.0 – LOWER SEYMOUR CONSERVATION RESERVE
FOREST ECOSYSTEM BIODIVERSITY INDICES



VERY LOW
LOW
LOW-MODERATE
MODERATE
HIGH
VERY HIGH
ROAD
RECREATIONAL PATHWAY
NOT APPLICABLE

Biodiversity index classifications are derived based on LSCR forest stand assessments by Oikos Ecological Consultants, May 2001, Table 3. Parameters assessed include forest structure, stratification, tree size, species diversity and others.

N

0Km 1Km 2Km 3Km
SCALE 1:75,000

Plotted June 21, 0 2002

2.4.5 Cultural Heritage Resource Management

There is a high level of interest in the diverse cultural heritage of the LSCR and maintaining this is an important part of stewardship of the reserve. Over 40 cultural heritage sites representing land-use by Euro-Canadian people are currently known in the LSCR. No sites of aboriginal origin have yet been documented, however there is no doubt that First Nations people used the lands in the LSCR.

OBJECTIVE

Maintain the cultural heritage of the LSCR.

STRATEGIES

Recognize, manage and interpret cultural heritage resources to maintain and communicate the "heritage landscapes" of the LSCR.

Cultural heritage sites in the LSCR include archaeological sites, those that pre-date 1846[1] and are protected under the B.C. Heritage Conservation Act, as well as post-European contact sites which are not formally protected through legislation. There is abundant evidence of this more recent history of logging, homesteading, mining, and the development of water infrastructure and transportation routes in the LSCR. Unto themselves, these resources may not be highly significant from an archaeological perspective. Collectively, they form "heritage landscapes" representing distinct periods and activities in the LSCR that have been superimposed upon the landscape chronologically. Eight heritage landscapes are represented in the LSCR (Figure 7.0). The GVRD will take responsibility and act as stewards in managing the LSCR's heritage landscapes. Members of the public and First Nations will be involved in determining the significance and best means for managing cultural heritage resources.

Establish a repository for information and artifacts on LSCR cultural heritage.

Cultural heritage information and artifacts from the LSCR are currently held in various places at the GVRD, the North Vancouver Museum and Archives and within the LSCR. A central repository will be established to consolidate these resources, ensure they are effectively documented and managed over time and to make this information readily available to the public. This may be at a community museum and archives or at the GVRD.

FIGURE 7.0 – HERITAGE LANDSCAPES OF THE LOWER SEYMOUR CONSERVATION RESERVE

Heritage resources in the LSCR do not exist in isolation from each other or from their natural setting. Heritage resources may be visualized as discrete 'landscapes', in the form of chronological and activity-based layers superimposed on the natural landscape. These heritage landscapes are portrayed below, from most recent to most ancient.

RECREATIONAL LANDSCAPE

⌄

WATERWORKS LANDSCAPE

⌄

SETTLEMENT AGRICULTURAL LANDSCAPE

⌄

MINING LANDSCAPE

⌄

LOGGING LANDSCAPE

⌄

PRE-CONTACT ABORIGINAL LANDSCAPE

⌄

GLACIAL/POST GLACIAL NATURAL LANDSCAPE

⌄

PRE-GLACIAL NATURAL LANDSCAPE

[1] 1846 is the date of the Treaty of Oregon and has been determined as the arbitrary cut-off date for the determination of archaeological resources of the B.C. Archaeological Branch.

OBJECTIVE

Avoid potential impacts to cultural heritage resources from the construction of projects, ongoing works and recreational activities where possible, and minimize those impacts that cannot be avoided.

STRATEGIES

Assess and manage potential impacts from proposed projects, works and recreational activities to protect significant cultural heritage resources.

The GVRD will adhere to the *Guidelines for Archaeological Impact Assessments* (BC Archaeology Branch, 1998) in assessing potential impacts to archaeological resources (those protected under the BC Heritage Act). These guidelines will also be used to assess and manage potential impacts to post-contact heritage resources where they are deemed significant by the GVRD through consultation with stakeholders and/or qualified professionals. In addition, the GVRD has undertaken an Archaeological Overview Assessment of its watersheds and the LSCR to identify sites potentially used by indigenous people in the past. This assessment will be used to identify potential archaeological sites for more detailed site assessments, and to manage potential impacts associated with proposed developments, works and recreational activities.

Develop a procedures manual and training program to guide GVRD staff, contractors and stakeholders with on-site management of cultural heritage resources.

A procedures manual will be developed as a tool to manage where unanticipated archaeological or heritage remains are encountered during land altering activities. Staff will be trained on procedures outlined in the manual including the appropriate handling of resources. The involvement of a qualified professional will be required in this initiative.

2.5 Increasing the Recreational and Interpretive Potential of the LSCR

The LSCR's features and location provide recreational and educational activities that are not offered elsewhere in the region in a similar natural setting. In-line skating, on-road cycling, mountain biking and the "hands on" programs offered in the LSCR's "outdoor classroom" are examples of experiences afforded. Annual visitations have increased dramatically since it was first opened as the Seymour Demonstration Forest in 1987, with trends continuing to grow. The LSCR's new Seymour Valley Trailway, a major regional recreational amenity, was officially opened in June, 2002. It includes a ten kilometer paved route followed by a two kilometer gravel trail through a diversity of forest landscapes in the Seymour valley to the Seymour Fish Hatchery. It replaces the Mainline Road, now closed to the public in anticipation of construction traffic for the Seymour water utility projects. Strategies to manage recreational and educational activities will balance the Board's goal of increasing recreational and educational potential while protecting the natural and experiential assets that attract visitors to the LSCR.

2.5.1 A Management Zoning Framework for the Lower Seymour Conservation Reserve

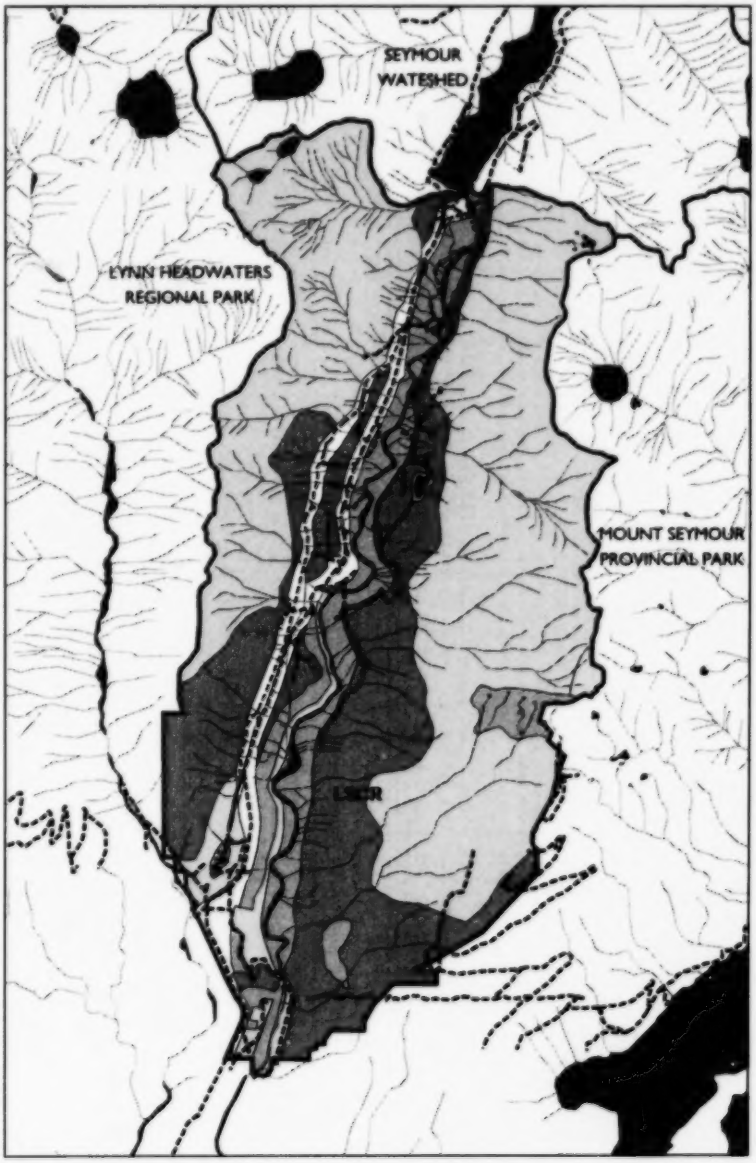
OBJECTIVE

Manage visitor activities and the development of facilities in a manner that respects the physical and biological sensitivities and existing developed areas of the LSCR.

STRATEGY

Manage visitor activities and facilities in accordance with zones that support higher visitor use in low sensitivity areas and limit or carefully manage access in sensitive areas (Figure 8.0).

FIGURE 8.0 – LOWER SEYMOUR CONSERVATION RESERVE MANAGEMENT ZONES



MAIN THOROUGHFARE
Low Sensitivity, High Use, Extensive Visitor Facilities or Utility Operations Corridor

HIGH USE RECREATION
Moderate Sensitivity, Major Destinations, High Use, Design Standards to Concentrate High Use

SPECIALIZED RECREATION
Medium Sensitivity, Medium Level Use, Design Standards to Terrain and Use

SPECIAL PROTECTION
High Sensitivity, Representative Landscapes, Access and Projects Carefully Managed

FOREST CONSERVATION
High Sensitivity, Access Limited

RECREATIONAL PATHWAY

ROAD

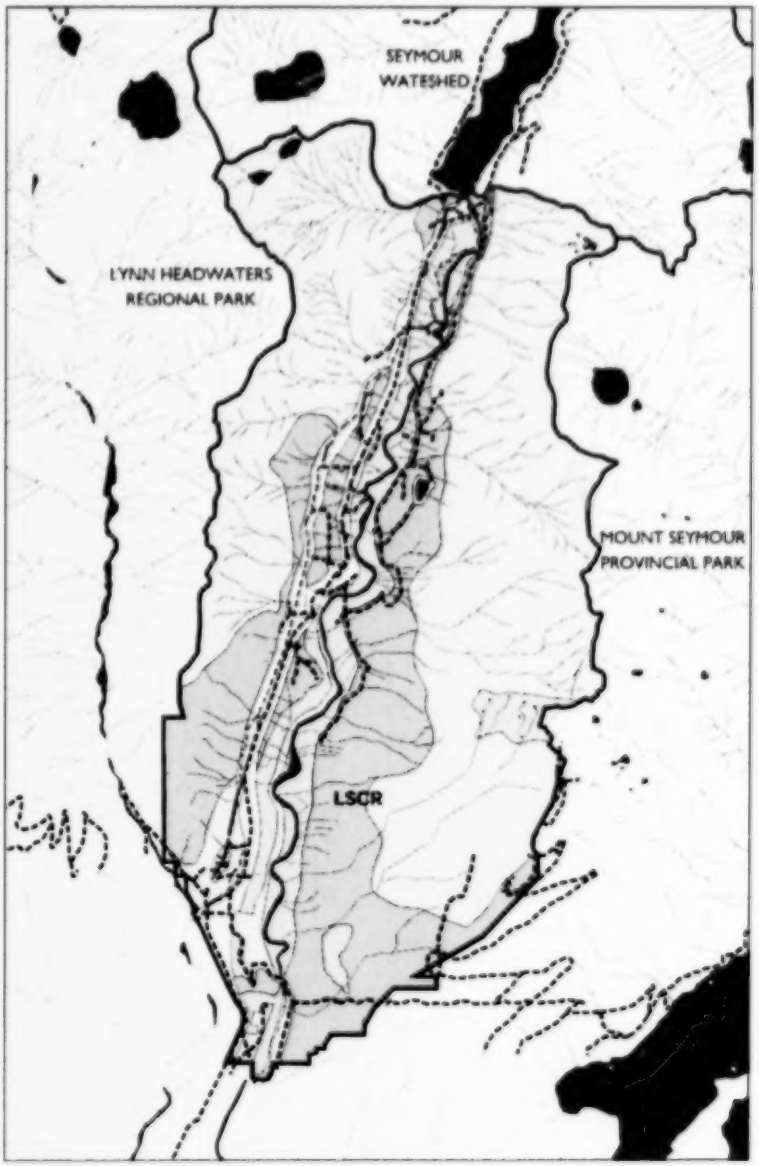
NOTE
Zone locations approximate to guide management.

N

0Km 1Km 2Km 3Km
SCALE 1:75,000

Plotted June 21 2002

FIGURE 8.0 – LOWER SEYMOUR CONSERVATION RESERVE MANAGEMENT ZONES



MAIN THOROUGHFARE
Low Sensitivity, High Use, Extensive Visitor Facilities or Utility Operations Corridor

HIGH USE RECREATION
Moderate Sensitivity, Major Destinations, High Use, Design Standards to Concentrate High Use

SPECIALIZED RECREATION
Medium Sensitivity, Medium Level Use, Design Standards to Terrain and Use

SPECIAL PROTECTION
High Sensitivity, Representative Landscapes, Access and Projects Carefully Managed

FOREST CONSERVATION
High Sensitivity, Access Limited

RECREATIONAL PATHWAY

ROAD

NOTE
Zone locations approximate to guide management.

The zoning framework for the LSCR recognizes the physical and biological sensitivities, as well as existing facilities, in different areas to guide land management. It is based on an approach of providing for higher visitor use in lower sensitivity areas and limiting or carefully managing access in sensitive areas. Figure 8.0 illustrates the LSCR Management Zones:

All Zones

Will be managed to maintain sensitive areas or specific habitats (e.g., riparian areas, heritage features, old growth trees, red-listed and threatened blue-listed ecosystems and species) that may occur within zones.

Zone I – Main Thoroughfare

Rice Lake Gate entrance area, Recreational Pathway, Seymour Dam viewing area, Seymour Hatchery, Lillooet Road access

- Low sensitivity landscapes
- Main recreational trailway and staging area
- Utility operations corridor

Management Approaches:

- High use visitor areas with highly developed visitor facilities
- May have cleared areas and paved surfaces to concentrate use and avoid disturbance on the adjacent landscape
- Utility operations corridor closed to public access for safety purposes.

Zone II – High-Use Recreation

Rice Lake trails, Twin Bridges trail, Homestead trail, Fisherman's trail, Mount Seymour trail access

- Moderately sensitive landscapes
- Relatively easy access to visitors
- High interest features and destinations (e.g., lakes, rivers, bridges).

Management Approaches:

- High use visitor areas
- Trails designed to accommodate and concentrate high volumes
- Extensive visitor information and orientation.

Zone III – Specialized Recreation

hiking and mountain bike trails in southeast sector and mid-slope

- Medium sensitivity landscapes (primarily second growth forest areas)
- Terrain may be sloped to steep; higher erodibility of soils
- Moderate to more difficult access for visitors

Management Approaches:

- Medium level of visitor use
- Facilities and trail design reflect level of use and specific terrain (e.g., narrower trails, basic bridge structures, drainage features)
- Provision of basic visitor information including educational information on sensitivities and safety issues (e.g., mountain biking etiquette).

Zone IV – Special Protecton Zone

Old Growth Trail, Dog Mountain trails, salmonid enhancement areas, riparian and wetland areas, Seymour floodplain, existing red and blue-listed ecosystems

- High sensitivity landscapes, ecosystems and features
- Terrain may vary from stable to moderately unstable

Management Approaches:

- Access and projects are carefully managed, and may be limited
- Special design standards to protect sensitive ecosystems (e.g., boardwalks, narrow trails)
- High level of visitor information and educational services (e.g., signage, interpretive programs)
- Ongoing monitoring required
- Closures may be required where impacts occur.

Zone V – Forest Conservation

old and mature forests, Patton bluffs, Suicide Creek emergency trail, "backcountry" areas

- High sensitivity landscapes due to sensitive ecosystems and/or terrain conditions and /or specific habitats

Management Approaches:

- Access is limited (e.g., research, emergency routes, backcountry trails)
- Where access is provided, lowest impact facilities possible
- Provision of basic visitor information where needed
- Monitoring required.

2.5.2 Recreational Activities and Facilities

OBJECTIVE

Increase recreational opportunities and improve connections with adjacent recreational areas, while maintaining visitor safety and experience and protecting sensitive ecosystem functions and integrity.

STRATEGIES

Assess and pursue the development of additional trails to connect with adjacent areas and expand the trail system to key destinations.

The development of additional hiking trails in the LSCR will be pursued based on the conceptual trail linkages shown in Figure 9.0, to enhance connections with adjacent areas and access to key destinations. Trail development plans will be consistent with Management Zones (Figure 8.0). Safety, potential environmental impacts, appropriate use and trail design will be evaluated. Public involvement in this initiative will be facilitated through the LSCR Stewardship Forum.

Develop an implementation program in partnership with mountain biking organizations to support and enhance appropriate mountain biking in the LSCR.

The LSCR is a unique setting in the system of GVRD recreation areas and has become a world-class destination for mountain biking with the highest use for this activity in the region. Partnerships with mountain bike associations are well established and serve to coordinate trail maintenance, user education and the implementation of special events. However,

some mountain bike facilities in the LSCR may impact the environment, other users' experiences and public safety, while only catering to a small portion of riders. These are not officially endorsed by the GVRD and require further assessment.

Working in partnership with representatives of mountain bike groups, the GVRD will develop an implementation program to support appropriate mountain biking in the LSCR. Mountain bikers will be encouraged to implement and fund elements of the program. Through this initiative, the LSCR can become a regional model for managing mountain biking and will help to manage demand for biking facilities. The LSCR mountain bike program will include:

- assessment of existing trail network and challenge structures;
- decommissioning and restoration of trails and structures that cause significant environmental impacts, risks, or user conflicts;
- review of trail design, construction, and maintenance guidelines and standards;
- development of a maintenance and patrol program led and implemented by mountain bike associations;
- liability management;
- provision for a wider range of skill levels, particularly intermediate opportunities;
- development of a coordinated information and educational signage program; and
- annual reporting by mountain bike associations to the GVRD including monitoring of activities and any proposed activities or improvements.

Increase potential for access and visitor facilities in the area between the Rice Lake gate and the south gate entrances.

Additional recreational opportunities including trails and staging areas will be assessed and pursued in the area between the Rice Lake gate and the south gate entrances in cooperation with the DNV and the CNV. These will enhance linkages with adjacent areas and manage the increasing recreational demand on the Rice Lake area facilities.

Provide public viewing and picnic facilities in conjunction with the seismic upgrade to Seymour Falls Dam.

Efforts will be made to provide facilities for the public to view the Seymour Reservoir and dam. Picnic facilities may be provided on top of the proposed new earthfill section of the dam in conjunction with the seismic upgrade of Seymour Falls Dam.

OBJECTIVE

Ensure trails are designed, constructed, and maintained to minimize impact to sensitive ecosystems and the safety and experiences of users.

STRATEGIES

Review trail design, development and maintenance guidelines that address sensitive areas, activity type, and level of use.

Trail design, development and maintenance guidelines will be reviewed for the LSCR to ensure that environmental factors and the needs of specific recreational users are adequately considered while promoting consistency in trail development and maintenance. Trail standards will support Management Zones and the type and level of visitor use. They will also be used to evaluate existing trails and conditions to identify those requiring upgrading or decommissioning.

Establish a coordinated agreement with BC Parks to manage and maintain trails within the LSCR on the Dog Mountain plateau and Mount Seymour.

A portion of the trail network in the Dog Mountain area and on Mount Seymour is located within the LSCR. Access to these trails is from Mount Seymour

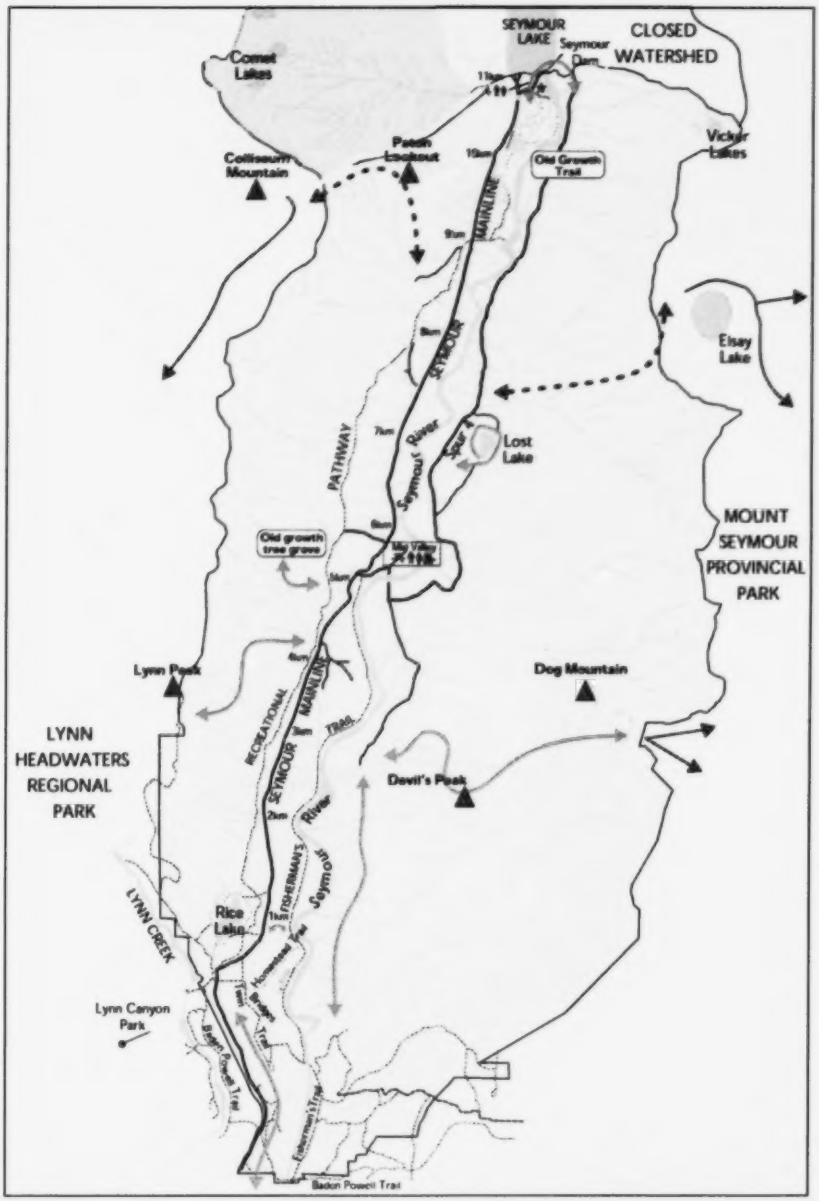
Provincial Park at the parking area of Mount Seymour Resort. A collaborative agreement will be established for the ongoing management and maintenance of this area to ensure safety and trail standards are maintained.

STRATEGY

Permit dogs in the area below Rice Lake gate and the Homestead Trail on-leash with off-leash areas as posted. Provide effective education and waste disposal facilities for dog walking.

Dogs are permitted on trails below Rice Lake gate and the Homestead Trail. This system provides 65 kilometers of trail access for dog walking and includes two designated off-leash trails. Environmental sensitivities including potential encounters with fish and wildlife, as well as potential conflicts with other recreationists, are a concern in lands above the Rice Lake gate and the Homestead Trail where dog walking is prohibited. Signage, education and dog waste receptacles are provided as part of this program. Staff will also continue to work closely with the Dog Patrol, a volunteer group involved in monitoring and public education of dog walking. This approach is consistent with the region's policy direction and principles on dog management in parks. Dog walking will be monitored on an ongoing basis and management measures may be adapted to meet the plan's principles and objectives. As additional trails are established, opportunities for dog access will be evaluated. Visitor safety will remain the highest priority in managing dogs.

FIGURE 9.0 – EXISTING LSCR TRAILS AND PROPOSED CONCEPTUAL TRAIL LINKAGES



PROPOSED TRAIL LINKAGES

ALTERNATIVE CONNECTION TO LYNN HEADWATERS AND MOUNT SEYMOUR PARK

Proposed trail linkages are conceptual and will require further assessment.

Mountain biking restricted on some trails.

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Plotted June 21, 2002

2.5.3 Interpretation and Education

OBJECTIVE

Communicate the objectives and directions of the LSCR Management Plan in public interpretive and education programs.

STRATEGY

Guide the development of educational programs by key themes supported within the management plan, such as sustainable management and stewardship of the LSCR, and appreciation of its diverse natural and cultural landscapes.

The diverse natural and cultural landscapes of the LSCR provide a rich milieu for interpretation that will be guided to support the goals and principles of the Management Plan. For example, some forest areas that have been previously harvested and are low in biodiversity can be used to learn, communicate and encourage more sustainable forest management and stewardship. The sustainable balance of multiple uses, water utility functions, diversity of ecosystems and cultural heritage landscapes are examples of other themes for interpretation.

OBJECTIVE

Increase the interpretive and educational potential of the LSCR and manage the current high demand for programs.

STRATEGIES

Develop a visitor interpretation centre to provide opportunities for public interpretation of the reserve's rich natural and cultural heritage, and its role in the region's water supply, as well as to support and demonstrate stewardship activities.

A visitor centre will be developed in the LSCR to provide opportunities for members of the public to learn about and experience the natural and cultural history and stewardship of the reserve. Development of the centre is a priority, as it provides an important means for achieving the Board's goals of increasing recreational and interpretive potential and encouraging a new land stewardship approach. The LSCR is an ideal location to interpret representative natural and cultural landscapes of the region. Offering particular interpretive opportunity, is the reserve's role in the provision of the region's drinking water. The centre will include facilities for interpretation, community stewardship activities, flexible display space (e.g., for public art), administration, washrooms and other basic public needs. The LSCR Stewardship Forum will provide a means to facilitate public input to help guide the design and development of the centre and pursue funding opportunities to contribute towards its establishment.

Support and develop a program to train volunteers to lead public and school educational programs.

The current high demand for LSCR school programs well exceeds the provision of programs. A volunteer training program where teachers and members of the public are trained to deliver school and public programs will be established. This will ultimately facilitate greater participation in LSCR programs and a more effective use of resources. Establishment of a volunteer coordinator position is recommended to implement this program.

Establish a coordinated information and interpretive media/ signage program.

A coordinated information and interpretive signage and media program will be developed and implemented to support the recreational pathway, redevelopment of the Rice Lake Access area, water utilities projects, access and trail enhancements and the overall need for improved visitor information. Incorporation of signage standards that are consistent with other GVRD recreation facilities will assist in promoting the LSCR as a regional facility. The development of brochures and maps will also be addressed.

2.5.4 Commercial Activities

OBJECTIVE

Explore opportunities for appropriate, low impact commercial activities that are consistent with the principles of the LSCR Management Plan and enhance the visitor experience.

STRATEGIES

Permit appropriate, low impact commercial activities that enhance visitor experience and provide benefits to the LSCR.

Certain low impact commercial activities, such as eco-tours, may enhance visitor experience of the LSCR. The GVRD will assess, permit and manage these activities as appropriate. The use of permits for commercial activities will be pursued, with fees going back into LSCR funds. Applicants will be required to monitor and report on activities. Proposals for commercial activities will be reviewed based on:

- Consistency with management plan objectives, principles and strategies
- Adherence to applicable regulations and guidelines;
- Safety and liability implications;
- Potential implications to other visitor and operational activities;
- Benefits to the visitor experience and to the LSCR.

Support filming activities based on the GVRD Filming Policy.

Application review for filming in the LSCR will be guided by GVRD policy and regulations for filming.

Require film producers develop and implement traffic management plans to minimize impacts of film traffic on LSCR users and the local community.

In keeping with the GVRD film policy, film representatives will be required to prepare and implement traffic management plans that minimize traffic impacts on LSCR users and the local community to the satisfaction of the GVRD.

2.5.5 Access and Transportation

OBJECTIVES

- **Provide for and manage increasing demand for visitor access and parking.**
- **Encourage alternative forms of transportation such as cycling, walking and public transit.**
- **Manage traffic associated with construction of water utility projects and ongoing operations and maintenance.**

STRATEGIES

Proceed with planning and implementation of the Selkirk-Monashee Connector and associated trail system jointly with the City of North Vancouver (CNV) and the District of North Vancouver (DNV).

The CNV intends to close the existing road through its cemetery for redevelopment purposes and provide road access along the Selkirk-Monashee alignment (see Figure 10.0). Subject to CNV approval, preliminary plans by the GVRD are to route Seymour Main No. 5 under Monashee Road and to have access to the LSCR by the new road. In addition, the development of a multi-use trail system connecting to the LSCR is recommended, as shown in Figure 10.0. The North Vancouver Cemetery is an important cultural feature of the North Shore, and should be respected as such by LSCR traffic.

Coordinate with Capilano College, CNV and DNV to develop a parking and staging facility at the south end of the North Vancouver Cemetery to reduce the growing parking demand on the Rice Lake entrance area.

Capilano College has indicated LSCR users could potentially utilize surplus parking located off Selkirk Street during weekends and planned major events (Figure 10.0). Use for these purposes will be explored as part of the detailed design of the Selkirk – Monashee Connector.

In the short term, upgrade and maintain a gravel surface treatment of the access road. As part of the future design and construction of Main No. 6 (approximately 2012), re-assess the need to pave and upgrade the access road.

Paving the gravel access road is not recommended at this time due to the potential safety implications of increased speed and conflicts with recreational users (e.g., in-line skaters, cyclists). As well, it is recognized the road surface will be disrupted with the construction of Main No. 6 commencing in approximately 2012. Issues associated with dust and the need for enhanced access for cyclists and pedestrians will be addressed through the development of a separated access trail (see below). Dust will be controlled through a road upgrade involving the installation of a gravel cap and surface treatment.

Pursue the development of a multi-use trail system in cooperation with DNV and BC Hydro to connect the proposed Monashee trail to the Rice Lake entrance area.

Figure 11.0 shows the conceptual trail system connecting a southern access area at Capilano College with the Rice Lake entrance area. Proposed trail alignments include:

- A multi-use trail (pedestrians, cyclists, equestrians) from the LSCR south gate connecting to the Rice Lake entrance. The DNV and BC Hydro support the preliminary trail concept through their lands and further coordination will be required as part of implementation plans. Paving of the trail is not recommended, in order to provide for equestrian access and to minimize environmental impacts. An assessment of grades of this trail and the existing pipeline berm trail indicate grades are too steep (sections at 12%) to support in-line skating.
- A "pedestrian-only" trail along the ridge adjacent the above proposed multi-use trail. The design of this trail will respond to its environmentally sensitive setting.

FIGURE 10.0 – SELKIRK/MONASHEE AREA – ACCESS OPPORTUNITIES

EXISTING ROAD

EXISTING TRAIL

PROPOSED ROAD

PROPOSED MULTI-USE TRAIL

PROPOSED PEDESTRIAN TRAIL

PROPOSED EQUESTRIAN TRAIL

New Twin Lane road with Curb and Gutter, and Sidewalk on South and East Side of Roadway

EXISTING MAJOR PARKING

NOTES

Trails are conceptual and will require further review with the District and City of North Vancouver and Capilano College, as appropriate

Existing and proposed trails incorporate municipal area plans to enhance linkages to the LSCR and may not be the responsibility of the GVRD

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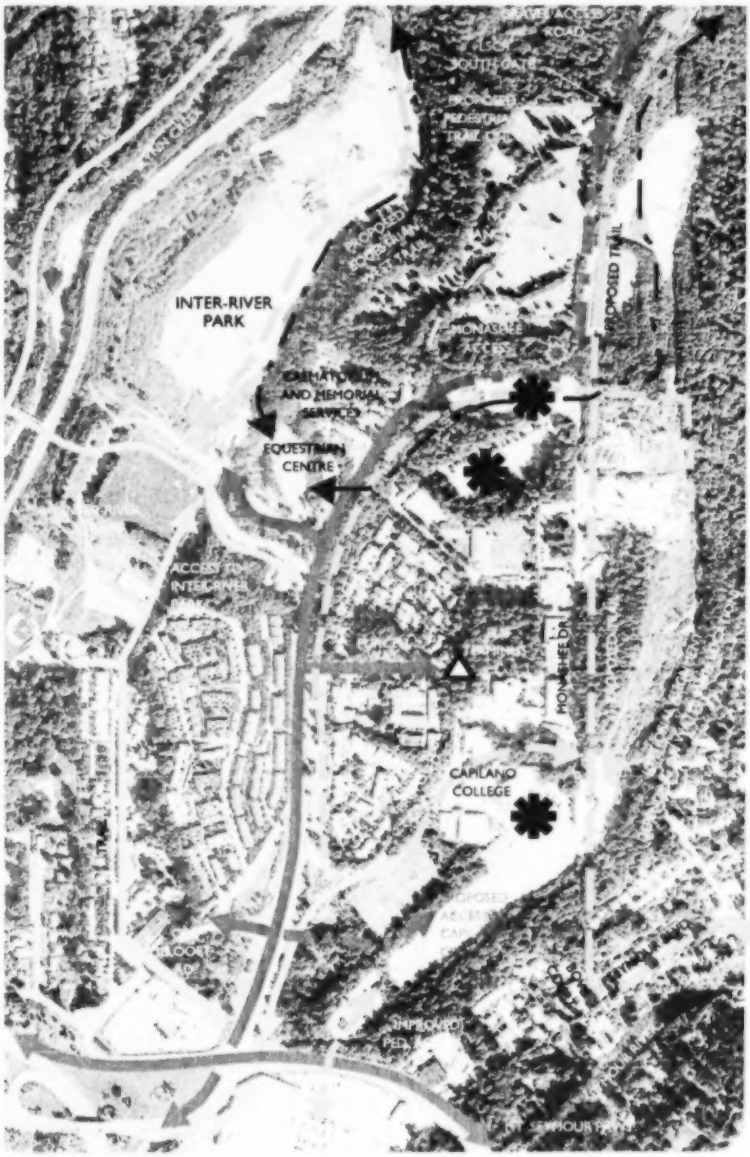
FIGURE 10.0 – SELKIRK/MONASHEE AREA – ACCESS OPPORTUNITIES



EXISTING ROAD

EXISTING TRAIL

PROPOSED ROAD

PROPOSED MULTI-USE TRAIL

PROPOSED PEDESTRIAN TRAIL

PROPOSED EQUESTRIAN TRAIL

New Twin Lane road with Curb and Gutter, and Sidewalk on South and East Side of Roadway

EXISTING MAJOR PARKING

NOTES

Trails are conceptual and will require further review with the District and City of North Vancouver and Capilano College, as appropriate

Existing and proposed trails incorporate municipal area plans to enhance linkages to the LSCR and may not be the responsibility of the GVRD

OBJECTIVE

Improve access and visitor facilities at the Rice Lake gate entrance area.

STRATEGIES

Redevelop the Rice Lake entrance to improve access and visitor services

Redevelopment of the Rice Lake gate entrance area is required as part of the development of the new recreational pathway and to improve visitor experiences and services. A variety of conceptual design options were developed by consultants and reviewed with the public as part of the Management Plan process. Based on the preferred concept (Figure 12.0), redevelopment of the area has been initiated to facilitate opening of the recreational pathway. It features:

- A greenspace/ picnic/ staging area in an area that was formerly parking;
- A new central parking lot in a previously disturbed site. This lot replaces parking lost to create the new greenspace and provide for soil storage areas (to be used during construction of the filtration plant);
- A centrally located visitor centre/gatehouse.

The design concept minimizes environmental impacts, while providing improved visitor facilities, orientation, circulation and more efficient parking. At the same time, it will accommodate a reasonable growth in visitation and support demand management measures (e.g., off-site parking, greenway connections and future shuttle bus).

Enhance shuttle bus service up the LSCR Valley to the Seymour Hatchery

The LSCR shuttle bus currently runs for public interpretive programs and during peak weekend periods on an as-needed basis. With the new recreational pathway, increasing recreational demand and the desire by visitors to have greater access to the upper Seymour Valley in the LSCR, shuttle service will be enhanced to provide regularly scheduled trips to the Seymour Hatchery. The provision of bicycle racks on the shuttle bus will also be explored to enhance this service.

In the medium to longer term, and in cooperation with the DNV and the CNV, implement additional transportation demand management strategies to encourage alternative transportation modes to the LSCR

With steady increases in visitation to the LSCR, local residents have been impacted by increased vehicle traffic through their community.

Using the results of ongoing traffic and visitor monitoring (see 2.6 and 2.7), the GVRD will assess and institute additional demand management measures as necessary including:

- Reviewing the feasibility and timing of instituting pay parking in the Rice Lake access area;
- Providing additional mode choices in accessing the LSCR including shuttle bus service;
- Evaluating the potential for establishing a small information/staging area to support trails and a potential shuttle bus in the Capilano College parking lot off of Selkirk Road.

FIGURE 11.0 – LSCR ACCESS ROAD – TRAIL AND ACCESS OPPORTUNITIES

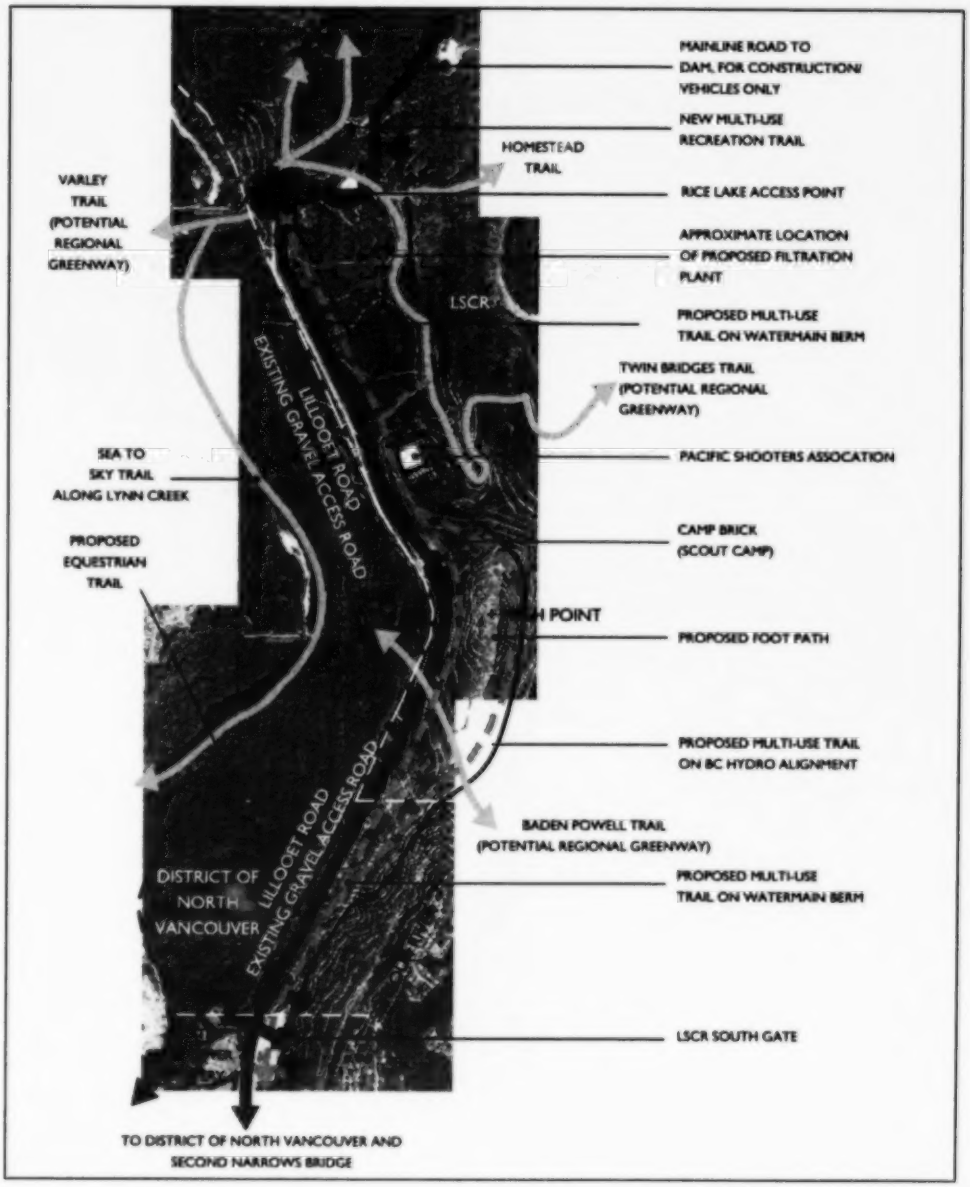
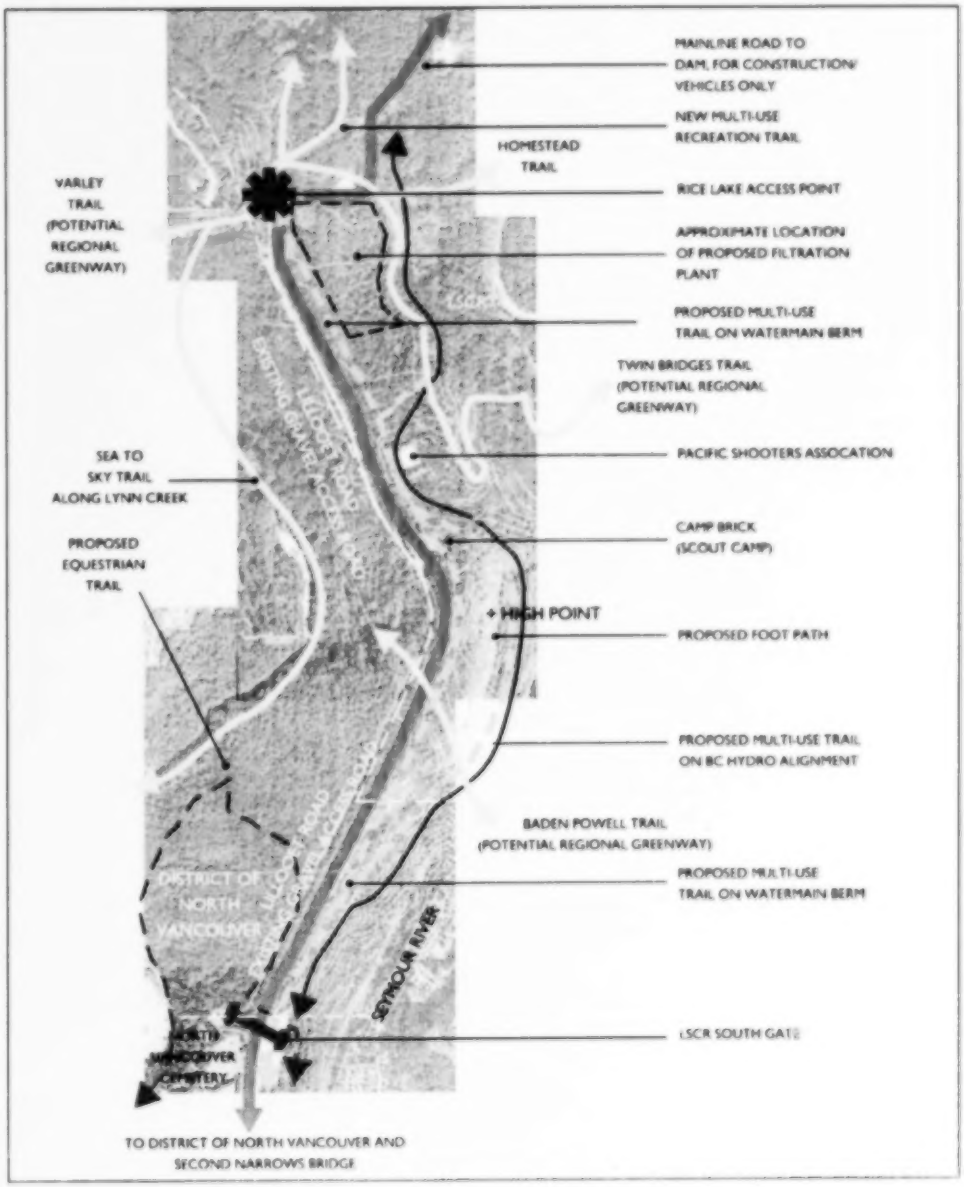

MAINLINE ROAD TO DAM, FOR CONSTRUCTION/ VEHICLES ONLY
NEW MULTI-USE RECREATION TRAIL
HOMESTEAD TRAIL
VARLEY TRAIL (POTENTIAL REGIONAL GREENWAY)
RICE LAKE ACCESS POINT
APPROXIMATE LOCATION OF PROPOSED FILTRATION PLANT
LSCR
PROPOSED MULTI-USE TRAIL ON WATERMAIN BERM
TWIN BRIDGES TRAIL (POTENTIAL REGIONAL GREENWAY)
LILLOOET ROAD EXISTING GRAVEL ACCESS ROAD
SEA TO SKY TRAIL ALONG LYNN CREEK
PACIFIC SHOOTERS ASSOCATION
CAMP BRICK (SCOUT CAMP)
PROPOSED EQUESTRIAN TRAIL
H POINT
PROPOSED FOOT PATH
PROPOSED MULTI-USE TRAIL ON BC HYDRO ALIGNMENT
LILLOOET ROAD EXISTING GRAVEL ACCESS ROAD
BADEN POWELL TRAIL (POTENTIAL REGIONAL GREENWAY)
DISTRICT OF NORTH VANCOUVER
PROPOSED MULTI-USE TRAIL ON WATERMAIN BERM
LSCR SOUTH GATE
TO DISTRICT OF NORTH VANCOUVER AND SECOND NARROWS BRIDGE
EXISTING ROAD
APPROXIMATE ALIGNMENT HISTORIC LILLOOET TRAIL (CONCEPT ONLY)
PROPOSED MULTI-USE TRAIL
N
EXISTING TRAIL
PROPOSED EQUESTRIAN TRAIL
PROPOSED FOOT PATH

FIGURE 11.0 – LSCR ACCESS ROAD – TRAIL AND ACCESS OPPORTUNITIES


MAINLINE ROAD TO DAM, FOR CONSTRUCTION VEHICLES ONLY
NEW MULTI-USE RECREATION TRAIL
HOMESTEAD TRAIL
VARLEY TRAIL (POTENTIAL REGIONAL GREENWAY)
RICE LAKE ACCESS POINT
APPROXIMATE LOCATION OF PROPOSED FILTRATION PLANT
PROPOSED MULTI-USE TRAIL ON WATERMAIN BERM
TWIN BRIDGES TRAIL (POTENTIAL REGIONAL GREENWAY)
SEA TO SKY TRAIL ALONG LYNN CREEK
PACIFIC SHOOTERS ASSOCATION
CAMP BRICK (SCOUT CAMP)
PROPOSED EQUESTRIAN TRAIL
HIGH POINT
PROPOSED FOOT PATH
PROPOSED MULTI-USE TRAIL ON BC HYDRO ALIGNMENT
BADEN POWELL TRAIL (POTENTIAL REGIONAL GREENWAY)
PROPOSED MULTI-USE TRAIL ON WATERMAIN BERM
DISTRICT OF NORTH VANCOUVER
SEYMOUR RIVER
LSCR SOUTH GATE
NORTH VANCOUVER CEMETERY
TO DISTRICT OF NORTH VANCOUVER AND SECOND NARROWS BRIDGE
EXISTING ROAD
APPROXIMATE ALIGNMENT HISTORIC LILLOOET TRAIL (CONCEPT ONLY)
PROPOSED MULTI-USE TRAIL
EXISTING TRAIL
PROPOSED EQUESTRIAN TRAIL
PROPOSED FOOT PATH

2.6 Continuing Research and Demonstration Activities

The LSCR serves as a "living laboratory" for research and demonstration projects pertaining to ecology, resource management, cultural heritage and recreation. Post-secondary institutions in the region and numerous agencies use the LSCR extensively for these purposes. The area offers diverse opportunities for research that are not commonly found in close proximity to a major urban centre. At the same time, these projects benefit the knowledge base available to inform management decisions in the LSCR. A goal of the GVRD Board for the management plan is to continue research and demonstration in the LSCR.

OBJECTIVE

Encourage and promote research with post-secondary institutions, other organizations and agencies, based on the directions within the management plan.

STRATEGIES

Guide research efforts based on directions of the management plan, which support stewardship, leading practices in sustainable management and restoration of habitat.

Research and demonstration activities will be implemented in partnership with post-secondary institutions, other agencies and organizations, based on the management plan principles and strategies.

Establish partnerships and gain funding to advance ecological research and restoration activities identified in the management plan.

Promote LSCR research and make results readily available to researchers, educators and members of the public by:

- Setting up an interactive computer data base with ecological assessment data in the LSCR;
- Highlighting research and demonstration projects on-line on the GVRD website;
- Showcasing demonstration sites;
- Developing a library of research reports within the LSCR.

OBJECTIVE

Gain site-level ecological data on sensitive forest ecosystems and features to guide management programs.

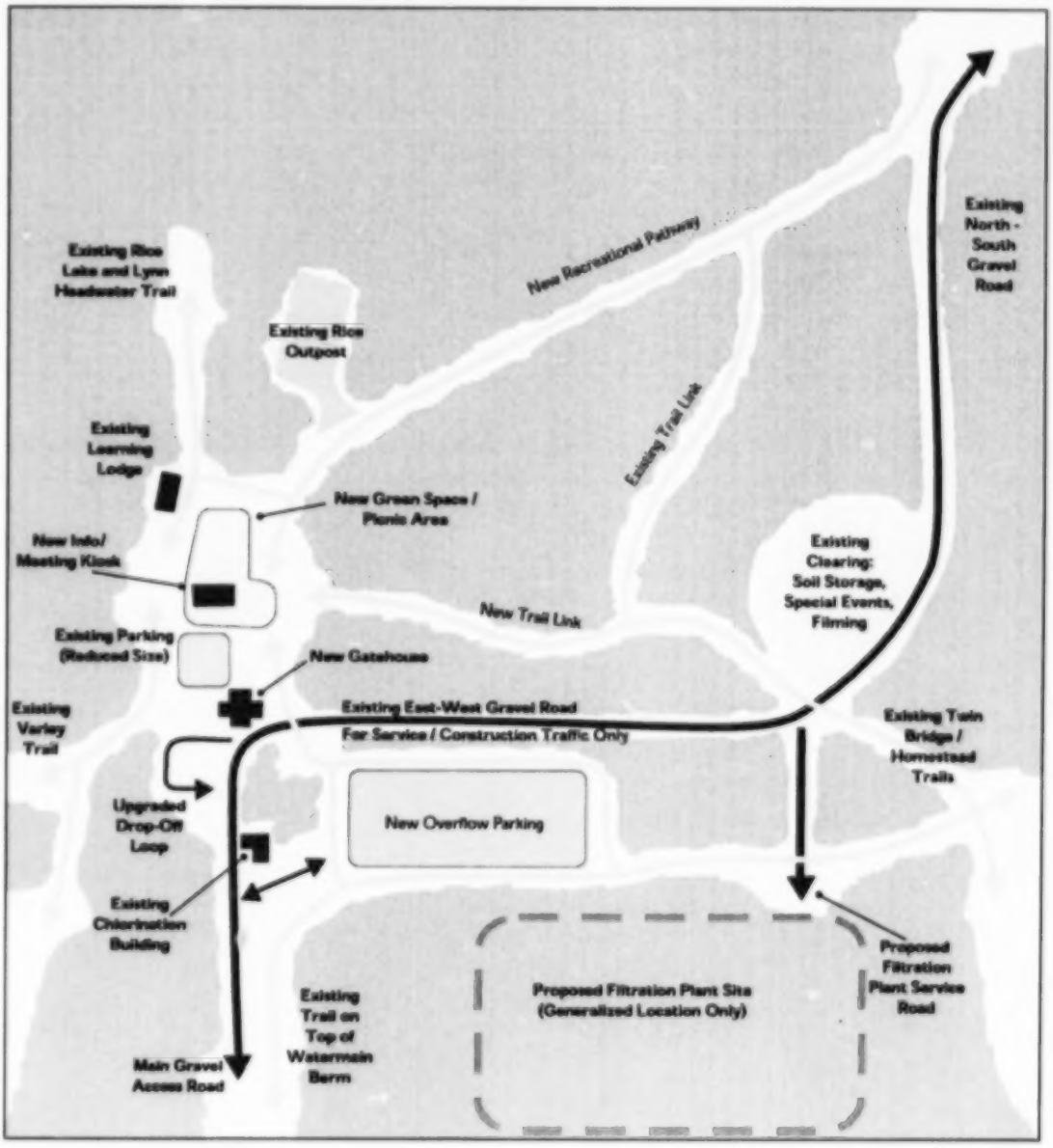
STRATEGIES

In partnership with research organizations and stewardship groups, conduct site level assessments on sensitive ecosystems and species

The locations and general health of the largest old growth trees in the LSCR are of special interest to the public and a heritage legacy of the forests that once dominated the area. Stands of old and ancient forests are shown in figures 4.0 and 5.0. Site-level assessments are needed to confirm the occurrence of stands and locate very large heritage trees. An inventory including specific locations, size statistics, tree health evaluations, and site descriptions of these, will be conducted with researchers and stewardship groups to locate and protect heritage trees. There are a number of related initiatives already underway.

Similarly, existing landscape level studies should be ground-truthed to verify the occurrence and extent of old and mature forests containing plant communities identified through the Conservation Data Centre (CDC) as endangered (red-listed) and threatened (blue-listed), as shown in Figure 4.0. Information on the presence of red and blue-listed wildlife and plant species in the LSCR is also lacking and research will be encouraged. The above ecological information will assist in identifying areas for conservation, and in planning and managing development projects and visitor activities to minimize environmental impacts. Occurrences of red and blue-listed ecosystems, species and heritage trees will be registered with the CDC. Partnerships with post-secondary institutions, environmental agencies and organizations and appropriate funding programs for ecological research will be pursued.

FIGURE 12.0 – RICE LAKE ACCESS – DEVELOPMENT DESIGN CONCEPT


Existing Rice Lake and Lynn Headwater Trail
New Recreational Pathway
Existing North - South Gravel Road
Existing Rice Outpost
Existing Learning Lodge
Existing Trail Link
New Green Space / Picnic Area
New Info/ Meeting Kiosk
Existing Clearing: Soil Storage, Special Events, Filming
New Trail Link
Existing Parking (Reduced Size)
New Gatehouse
Existing Varley Trail
Existing East-West Gravel Road
For Service / Construction Traffic Only
Existing Twin Bridge / Homestead Trails
Upgraded Drop-Off Loop
New Overflow Parking
Existing Chlorination Building
Proposed Filtration Plant Service Road
Proposed Filtration Plant Site (Generalized Location Only)
Existing Trail on Top of Watermain Berm
Main Gravel Access Road
TRAIL
GRAVEL ROAD / CLEARING
N

OBJECTIVE

Monitor forest ecosystems and the effect of visitor activities and various management programs over time to adapt management strategies.

STRATEGIES

Establish long term plots to monitor the effects of human activities and changes in ecosystem composition, structure and function

Long term monitoring plots will be established in high-use areas to monitor the effectiveness of trails and structures (e.g., boardwalks, bridges) in protecting ecosystem functions and assessing the general long-term impacts of visitor use in old forest areas. The Old Growth Trail is a key site for long term monitoring.

A national program initiated by Environment Canada called Ecological Monitoring and Assessment Network (EMAN) includes the entire Seymour watershed and the LSCR as a monitoring site. This program will be expanded to increase the number of long term monitoring plots. Plot sampling can be expanded to serve as local benchmark sites to monitor ecosystem changes that may result from climate change, air pollution, human effects and natural succession. Plot selection will be coordinated with other LSCR inventory programs (e.g., old forests, endangered and threatened ecosystems, old forests with recreational access facilities). Co-operation with local post-secondary institutions and government agencies will be pursued to expand the monitoring program.

Continue monitoring programs for hemlock looper, balsam woolly adelgid and gypsy moth and other insects and diseases.

Forest insect outbreaks can impact the structure and composition of forest ecosystems in the LSCR. Hemlock looper and balsam woolly adelgid have been found in GVRD watersheds. Monitoring programs document endemic levels of forest insects and pathogens, and provide an important baseline for reacting to increased levels of these potentially important populations.

Monitor the establishment of invasive and non-native species.

Invasive and non-native species such as scotch broom will be monitored and, depending on the level of native species disruption, may be managed through environmentally-friendly measures such as manual removal. Such efforts may be coordinated by a working group established through the Stewardship Forum or through other interested research organizations.

OBJECTIVE

Determine the status of existing archaeological and heritage resources in the LSCR.

STRATEGY

Complete an inventory and develop a map of cultural heritage sites and resources in the LSCR.

An inventory and map of cultural heritage sites is needed to better understand the status of heritage resources and to effectively manage them for the future. The inventory will be a long term, ongoing project that will build on existing partnerships and encourage involvement by stakeholders and post-secondary institutions such as the Capilano College Archaeology Program. Standard protocols for inventorying and recording information will be developed (e.g., BC Archeological Site Inventory form). The inventory will be compiled in GIS format and will augment the LSCR Ecological Assessment. A priority action will be to inventory the Lillooet Trail, to the extent possible, due to the high interest in this historic route and potential for impacts from the development of recreational trails and water utility projects. Site inventory data will be submitted to the BC Archaeology Branch for inclusion in the Provincial Heritage Register database.

OBJECTIVE

Monitor recreational activities and visitor experience in the LSCR.

STRATEGY

Conduct visitor surveys of the LSCR every 5 years.

A visitor survey will be conducted every 5 years to assess visitation levels, break-down of activities, visitor experiences and needs to comprehensively assess visitation on an ongoing basis.

2.7 *Implementing, Monitoring and Adaptive Management*

The GVRD Board has made a commitment to maintaining the LSCR for multiple uses – including water reserve functions, research and demonstration, recreation and interpretation. The Management Plan sets out sound management practices, identifies future development directions, and ties these together as a means for achieving sustainability in the LSCR. Implementation will require establishing a balance among environmental, social and economic considerations. Monitoring and adaptive management will be important components of the implementation process, highlighting successes and areas for improvement.

While many of the Plan strategies are within current program parameters, certain will require extra resourcing. The goal to maintain and increase recreational capacity in the LSCR has had, and will continue to have, associated cost implications. Consequently, strategies associated with achieving this goal (i.e., through facility development and maintenance) comprise a significant part of anticipated additional costs. Furthermore, operating costs for existing LSCR programs are likely to increase as recreational and interpretive use continues to increase. Resources will be determined through the GVRD's program and budget process, and through the establishment of partnerships and cost-sharing arrangements with other organizations. Operational needs will be addressed through annual budget review processes. Significant budget items, and additional mitigation and enhancement works associated with utility projects, will be reviewed by the GVRD Board as part of capital project budget options. The aim will be to realize opportunities for collaboration, in order to maximize program outcomes.

OBJECTIVE

Develop a strategic approach to guide Management Plan implementation.

STRATEGIES

Prepare an annual implementation program for review by the GVRD Board.

An annual implementation program will be prepared to identify priorities for the coming year from among proposed initiatives in the Management Plan. Public input on the implementation program will be facilitated through the LSCR Stewardship Forum. It will be submitted to the GVRD Board for approval through the program and budget process.

Assess and pursue the implementation of Management Plan strategies, as identified in Appendix 1.0.

Over the longer term, and with public involvement facilitated through the Stewardship Forum, GVRD staff will assess and pursue the implementation of all Management Plan strategies, as identified in Appendix 1.0. The Forum will play an important role in encouraging partnerships and assisting with the development of fund-raising means for stewardship initiatives.

OBJECTIVE

Monitor performance of implementing the management plan to evaluate and adapt management strategies to achieve plan objectives.

STRATEGY

Prepare an annual report to monitor implementation of the management plan for review by the GVRD Board.

An annual report on the status and outcome of implementation programs will be prepared and forwarded to the GVRD Board for review. The report will also be presented to the LSCR Stewardship Forum. Specific indicators that measure the performance of strategies and changes in baseline conditions will be established. This monitoring program will facilitate adaptive management in order to achieve the Board's goals for the LSCR.

Review the LSCR Management Plan every 5 years to confirm or adapt goals, objectives and strategies as necessary.

Given that priorities, information-bases, and conditions are continually changing, the Management Plan should be reviewed on a regular basis to ensure that it reflects current needs.

GLOSSARY OF TERMS

ADAPTIVE MANAGEMENT

A dynamic planning process that recognizes the future cannot be predicted perfectly. As a result, planning and management strategies are modified frequently as better information becomes available. It applies methods to improve management activities incrementally, as decision-makers learn from experience and new scientific findings, and adapt to changing social expectations and demands. The process requires constant monitoring and analysis of the results of past actions, which are then fed back into current decisions and innovations.

BEST MANAGEMENT PRACTICES

Best management practices are a system of accepted methods, measures, or practices designed to maintain, avoid or minimize deterioration of the environment where projects and works are proposed. Management practices may involve structural (e.g., engineered) or non-structural (e.g., planning, operations, and practices) solutions.

BIODIVERSITY (BIOLOGICAL DIVERSITY)

The variety, distribution and abundance of plants and animals and other living organisms in all their forms and levels of organization, including the diversity of genes, species, ecosystems, and the evolutionary and functional processes that link them. Simply put, this is the "variety of life".

BIODIVERSITY (OR ECOLOGICAL) THINNING

Involves carefully managed thinning of young, second growth stands to accelerate re-establishment of complex habitat structures characteristic of old forest ecosystems. This technique can be used to improve riparian functions in harvested streamside stands.

CONSERVATION

The practice of using the natural environment and its resources (for consumptive or non-consumptive purposes) in an ecologically aware manner, in order to sustain use for future generations.

ECOSYSTEM

The interconnected assemblage of all species populations that occupy a given area, and the physical environment with which they interact.

ECOSYSTEMS-BASED APPROACH

A strategy for integrated management of land, water, air and species that strives to manage in a manner that protects ecosystem integrity. This approach considers the parts, functions and relationships of particular ecosystems (e.g., water, air, soil, plants, fungi, wildlife, humans, energy flow) in determining the effect of proposed policies, plans, projects, works and human activities. An ecosystems-based approach does not preclude development. Rather, it is a proactive approach that aims to understand particular ecosystems and anticipated effects of activities in order to develop strategies to avoid or minimize impacts. The scale of analysis and action should be determined by the problem being addressed.

ECOSYSTEM INTEGRITY

The quality of a natural unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species, and ecosystem diversity assured for the future.

ENVIRONMENTAL STEWARDSHIP

Caring for and attending to the natural environment to ensure it is managed for future generations.

PROTECTION

Preservation of an environment (or certain features or ecological functions) in its natural state.

SUSTAINABILITY

Requires the balance of environmental, social and economic dimensions, and a plan for maintaining this balance for future generations.

APPENDIX 1.0 – IMPLEMENTATION FRAMEWORK

GOAL ONE – *Maintain the capacity of the LSCR as a water reserve and provide for water utilities*

Obectives and Strategies	**Resource Requirements** *(staff and/or financial)*		
	Within existing program parameters	**Minor**	**Possibly significant**
Ensure environmental and recreational values of the LSCR are considered in future drinking water supply options.			
Integrate strategies of the LSCR Management Plan in the development of the Drinking Water Management Plan	›		
Recognize the relationship and maintain the values of water utility projects to the LSCR's environmental, cultural heritage, recreational and education activities.			
Realize the synergies between the water utility projects and public recreational, educational, cultural heritage, research and demonstration interests.	Depends on degree of facilities provided		
Raise awareness of the role of the LSCR in the region's water supply and educate the public on water conservation and best practices to help conserve the Seymour source.			
Interpret the role of the Seymour watershed and the LSCR in the region's water supply and encourage water conservation and best management practices.	›		

GOAL TWO – *Create a new land stewardship approach that builds on high level of public involvement*

Public Input			
Promote and involve members of the public in stewardship of the LSCR			
Establish a Lower Seymour Conservation Reserve Stewardship Forum to involve representatvies of stakeholder groups in ongoing stewardship, implementation and monitoring of the management plan.			›
Through the Stewardship Forum, explore means to raise funds for stewardship initiatives.	›		
Involve members of the public in a monitoring program to monitor baseline and changing conditions as well as outcomes of implementing the management plan.			›
Develop a stewardship appreciation program to recognize exemplary volunteer efforts in the LSCR.	›		
Ecosystem Protection			
Identify and maintain the integrity and function of environmentally sensitive areas, ecosystems and species			
Conserve the ecological integrity and function of environmentally sensitive areas and species.	›		
Manage ecosystems to protect and enhance biological diversity based on regional, provincial and federal objectives.			
Coordinate ecosystem management strategies with other ecosystem initiatives.	›		
Manage ecosystems to recognize natural processes including fire and insect infestations while ensuring public safety, property, recreational and aesthetic values are maintained.			
Develop an ecologically-based, integrated forest fire and forest insect management program	›		

Obectives and Strategies	Resource Requirements *(staff and/or financial)*		
	Within existing program parameters	Minor	Possibly significant
GOAL TWO – *(Continued)*			
Managing Environmental Impacts			
Avoid and minimize environmental impacts associated with projects and works.			
Coordinate the planning, implementation and review of projects and activities in the LSCR to develop strategies to maintain ecosystem functions and integrity.	›		
Implement Best Management Practices in development projects, works, and visitor activities.	Ranges from routine practice to potential significant additional costs, depending on the project and the scope of BMPs.		
Manage the extraction of gravel to ensure that impacts to surrounding areas are minimized and disturbed areas are restored.			
Prepare a comprehensive and integrated gravel extraction management plan for the LSCR.	›		
Develop a traffic management plan for major projects.		›	
Monitor the implementation of projects and works to prevent unanticipated environmental impacts and ensure environmental objectives are met.			
Designate an Environmental Monitor for all major capital projects to ensure projects are implemented to meet environmental objectives.	›		
Restoring and Enhancing Ecosystems			
Minimize habitat loss from the development and implementation of projects and works.			
Manage for habitat losses or impacts resulting from capital projects, operations, maintenance and recreational activities through habitat restoration and enhancement measures to maintain critical ecological functions.	Depends on project, and scope of compensation work. Aquatic habitat restoration and enhancement is required by DFO.		
Restore previously disturbed sites to enhance ecosystem functions, habitat and biodiversity.			
Establish pilot projects to restore forest ecosystems in second growth stands of low biological diversity to improve important ecosystem functions and enhance biodiversity and habitat.		›	
Restore and enhance aquatic habitat in partnership with the Seymour Salmonid Society and Fisheries and Oceans Canada.	›		
Managing Cultural Heritage Resources			
Maintain the cultural heritage of the LSCR.			
Recognize, manage and interpret cultural heritage resources to maintain and communicate the "heritage landscapes" of the LSCR.	›		
Establish a repository for information and artifacts on LSCR cultural heritage.		›	
Avoid potential impacts on cultural heritage resources from the construction of projects, ongoing works and recreational activities where possible, and minimize those impacts that cannot be avoided.			
Assess and manage potential impacts from proposed projects, works and recreational activities to protect significant cultural heritage resources.	›		
Develop a procedures manual and training program to guide GVRD staff, contractors and stakeholders with on-site management of cultural heritage resources.		›	

Obectives and Strategies	Resource Requirements (staff and/or financial)		
	Within existing program parameters	Minor	Possibly significant
GOAL THREE – *Increasing the Recreational and Interpretive Potential of the LSCR*			
Management Zoning Framework for the Lower Seymour Conservation Reserve			
Manage visitor activities and the development of facilities in a manner that respects the physical and biological sensitivities and existing developed areas of the LSCR.			
Manage visitor activities and facilities in accordance with zones that support higher use in low sensistivity areas and limit or carefully manage access in sensitive areas.	›		
Recreational Activities and Facilities			
Increase recreational opportunities and improve connections with adjacent recreational areas while maintaining visitor safety and experiences and protecting sensitive ecosystem functions and integrity.			
Assess and pursue the development of additional trails to connect with adjacent areas and expand the trail system to key destinations.	›		
Develop an implementation program in partnership with mountain bike organizations to support and enhance appropriate mountain biking in the LSCR.	›		
Increase potential for access and visitor facilities in the area between the Rice Lake gate and the south gate entrances.		Depends on extent.	
Provide public viewing and picnic facilities in conjunction with the Seismic upgrade to Seymour Falls Dam.		›	
Ensure trails are designed, constructed and maintained to minimize impact to sensitive ecosystems and the safety and experiences of users.			
Review trails design, development and maintenance guidelines	›		
Establish a coordinated agreement with BC Parks to manage and maintain trails within the LSCR on the dog Mountain plateau and Mount Seymour.	›		
Permit dogs in the area below the Rice Lake gate and the Homestead Trail on-leash with off-leash areas where dogs must be under the control of their handler, as posted. Provide effective education and waste disposal facilities for dog walking.	›		
Interpretation and Education			
Communicate the objectives and directions of the LSCR Management Plan in public interpretative and education programs.			
Guide the development of interpretative and education programs by key themes supported within the management plan including the diverse natural and cultural heritage landscapes, sustainable management and stewardship of the LSCR.	›		
Increase the interpretative and educational potential of the LSCR and manage the current high demand for programs.			
Develop a visitor interpretation centre.			›
Support and develop a program to train volunteers to lead public and school educational programs.	›		
Establish a coordinated information and interpretative media/signage program.	›		
Commercial Activities			
Explore opportunities for appropriate, low impact commercial activities that are consistent with the principles of the Management Plan and enhance visitor experience.			
Permit appropriate, low impact commercial activities that enhance visitor experience and provide benefits to the LSCR.	›		
Support filming activities based on the GVRD Filming Policy.	›		
Require film productions develop and implement traffic management plans to minimize impacts of film traffic on LSCR users and the local community.	›		

Objectives and Strategies	Resource Requirements (staff and/or financial)		
	Within existing program parameters	Minor	Possibly significant
GOAL THREE – (Continued)			
Access and Transportation			
Provide for and manage increasing demand for visitor access and parking; encourage alternative forms of transportation such as cycling, walking and public transit; manage traffic associated with construction of water utility projects and ongoing operation			
Proceed with planning and implementation of the Selkirk-Monashee Connector and associated trail system jointly with City of North Vancouver (CNV) and District of North Vancouver (DNV).			›
Coordinate with Capilano College, CNV and DNV to develop a parking and staging facility at the south end of the North Vancouver Cemetery to reduce the growing parking demand on the Rice Lake entrance area.			›
In the short term, upgrade and maintain a gravel surface treatment of the gravel access road.	›		
Pursue the development of a multi-use trail system in cooperation with DNV and BC Hydro to connect the proposed Monashee trail to the Rice Lake entrance area.			›
Enhance shuttle bus service up the LSCR Valley to the Seymour hatchery.		Depends on extent.	
In the medium to longer term (6-15 years), and in cooperation with DNV transportation planners, implement additional transportation demand management strategies to encourage alternative transportation modes to the LSCR.			Depends on approach (would require Board endorsement).
Improve access and visitor facilities at the Rice Lake gate entrance area.			
Redevelop the Rice Lake entrance to improve access and visitor services.			›
GOAL FOUR – Continuing Research and Demonstration Activities			
Encourage and promote research with post-secondary institutions, other organizations and agencies based on the directions within the management plan.			
Guide research efforts based on directions of the management plan which support stewardship, leading practices in sustainable management and restoration of habitat.	›		
Establish partnerships and gain funding to advance ecological research and restoration activities identified in the management plan.	›		
Make results of LSCR research readily available to researchers, educators and members of the public by: setting up an interactive computer data base, highlighting research and demonstration projects on-line, showcasing demonstration sites, and developing a library of research reports.	›		
Gain site-level ecological data on forest stands to guide forest ecosystem management programs.			
In partnership with research organizations and stewardship groups, conduct site level assessments on sensitive ecosystems and species		›	
Monitor forest ecosystems and the effect of various management programs/activities over time to adapt management strategies.			
Establish long term plots to monitor the effects of human acitivities and changes in ecosystem composition, structure and function.		(Depends on extent)	
Continue monitoring programs for hemlock looper, balsam woolly adelgid and gypsy moth and other insects and diseases.	›		
Monitor the establishment of invasive and non-native species.			Depends on aggressiveness of program.
Determine the status of existing archaeological and heritage resources in the LSCR.			
Complete an inventory and develop a map of cultural heritage sites and resources in the LSCR.	›		
Monitor recreation activities and visitor experience in the LSCR.			
Conduct visitor survey of the LSCR every 5 years	›		

Lower Seymour Conservation Reserve Management Plan

For more information contact
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The Greater Vancouver Regional District includes the municipalities of Anmore, Belcarra, Bowen Island, Burnaby, Coquitlam, Delta, Langley, Langley Township, Lions Bay, Maple Ridge, New Westminster, North Vancouver City, North Vancouver District, Pitt Meadows, Port Coquitlam, Port Moody, Richmond, Surrey, Vancouver, West Vancouver, White Rock and Electoral Area A.